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News

MARCH, 1953

TECHNOLOGY

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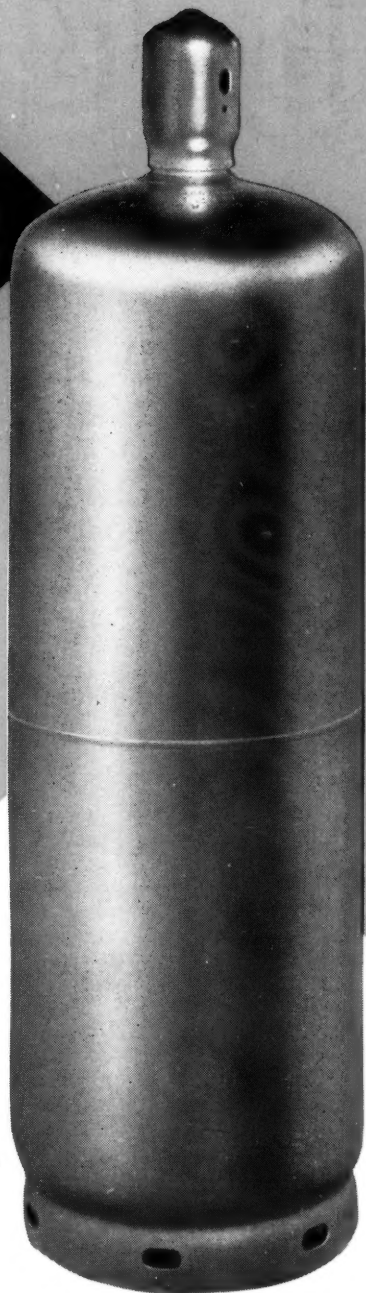
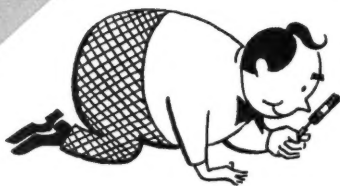
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MARCH 1953

BUTANE-PROPANE

NBP

News

VOLUME 15

NUMBER 3

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LETTERS



Headquarters

for L.P. gas Information

Since 1931

Canada

We have been encountering some difficulty with a black scale forming on the inside of our copper tubing and which eventually collects in the screens in regulators. This tends to plug the regulators and some of it works through the line into the orifices on the appliance, plugging them also.

Would this be a common chemical reaction between propane and copper tubing or would it be caused by impurities in the propane, such as sulphur? Also, is the formation of this scale common in the propane industry or is it strictly dependent on the refining of the propane?

T.L.H.

Pure propane does not have a corrosive action on brass or copper. The scale is due to impurities in the propane and can probably be traced to sulphur, which is likely to be in the form of sulphides.

Some darkening and scale formation can generally be noted, but normally it does not reach the concentration which you report. Generally it is dependent on the quality of the raw gas and the refining process.—Ed.

Tennessee

We have several large mills in this section who are using 1020 Btu per cu. ft. natural gas. Some of these boilers have been converted from coal; some have gas designed boilers. They are interested in having a stand-by plant of propane, as all are on the interruptable rate.

In all cases a changeover from propane to natural gas will necessitate change of orifice, and quite a delay

in operation. Our idea is that we may be able to reduce the 2550 Btu content of our fuel to approximately 1000 Btu gas, and use our fuel through the present burners and boilers without any physical changes. If this could be done it would simply necessitate the opening of valves from the propane-air and closing natural gas valves.

My problem is: Can we, with a vaporizer, use a 2000 gallon tank to fire a 3,500,000 Btu Bryant burner, Model No. 214-23, with propane gas reduced to 1020 Btu gas per cu. ft. at approximately 1 lb. pressure? If so, would this necessitate any changes in the physical aspect of the burner as now installed, or merely opening the valves and using either gas they desire?

L.A.V.

There are many industrial plants throughout the country which depend upon L. P. gas-air mixtures for their standby fuel during periods when the natural gas supply is interrupted. No changes in burner or orifice are required to make the changeover.

However, the LPG-air mixture does not have the same heating value as the natural gas which it replaces, if the above results are obtained. It is necessary for the LPG-air mixture to have a higher heating value than the natural gas, somewhere in the range between 1400 and 1550 Btu per cu. ft. of LPG-air mixture, depending on the characteristics of the natural gas and the LPG. We suggest that you consult either an engineer experienced in this type of work, or the manufacturer of equipment used for this service.

The boiler you describe has a heat input of 3,500,000 Btu per hour, which equals about 38 gallons of propane per hour. At this rate, the boiler would use as much as 300 gals. in an 8-hr. day. It is doubt-

ful if it pulls at this maximum rate continuously, so the actual load may be less. The 200-gal. tank would last 6 or 7 days at the above maximum rate. Unless you have adequate storage facilities to service customer demand, it is best to consider the installation of enough storage for each customer to carry him through the winter season.—Ed.

Wisconsin

We would like to know the effect of temperature on a cubic foot of propane.

If we sell gas by meter to consumers, will our charge per cubic foot be for the same number of therms regardless of the temperature of the gas?

Will the meters give an accurate accounting over the various seasons of the year?

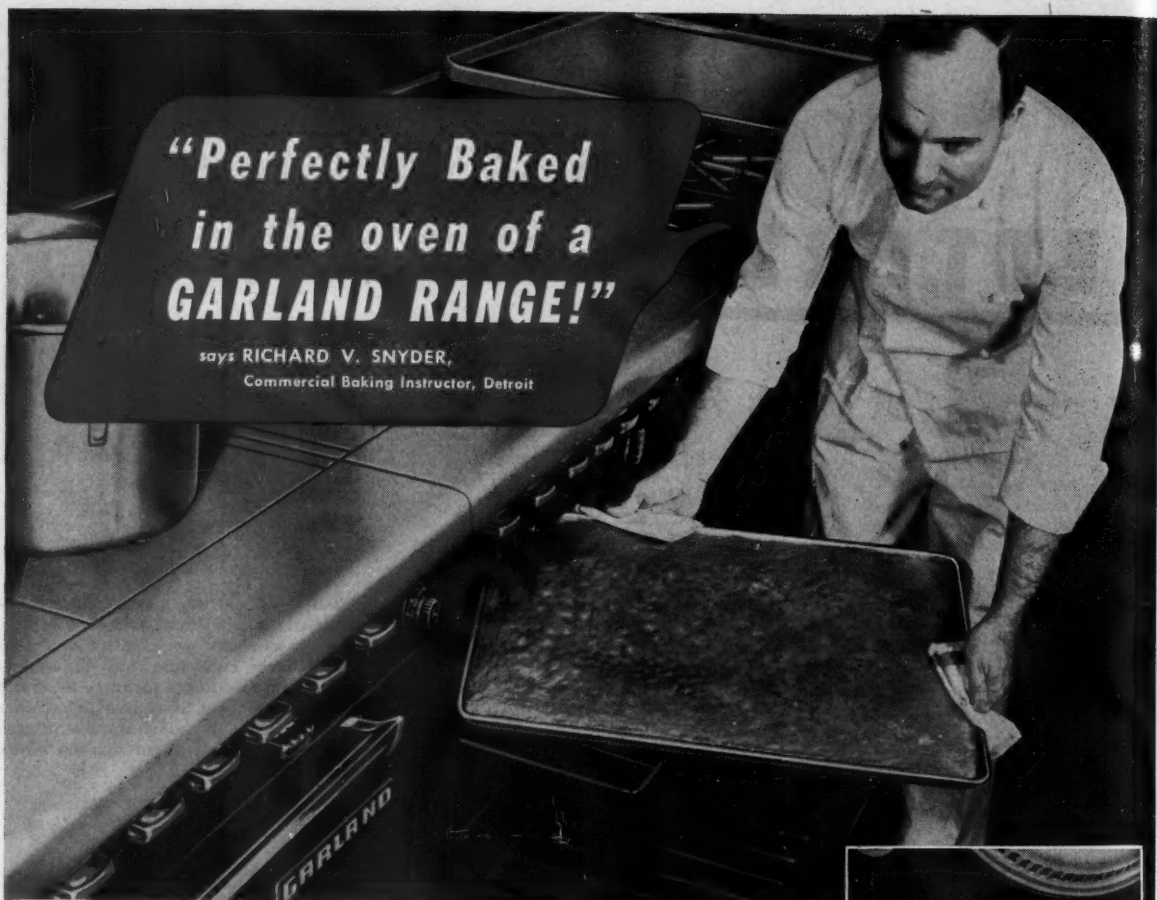
B.O.

The therms delivered per cubic foot will vary as the temperature of the gas varies, provided the pressure remains constant. As a gas cools, it shrinks in volume, but the heat content remains the same.

For example: A quantity of gas is trapped in a balloon so that it cannot leak out and no other gas can get in. Assume that the balloon is not exerting any pressure on the gas, and that the gas occupies exactly 1 cu. ft. when at a temperature of 60° F. and atmospheric pressure at sea level. Now the gas and the air surrounding the balloon are cooled to 20° F. If the gas is measured, it will be found to occupy only 0.9230 of a cu. ft. Yet none of the gas escaped, so none of the heat units which it is capable of releasing have escaped. But the meter does not change (the ordinary house meter has no device that automatically compensates for temperature changes) so it will register only 0.9230 cu.

**"Perfectly Baked
in the oven of a
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says **RICHARD V. SNYDER,**
Commercial Baking Instructor, Detroit



Mr. Snyder removes a sheet cake from a Garland oven.

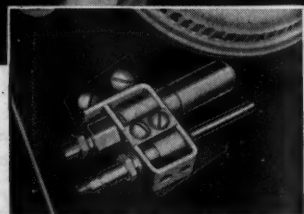
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ft. when the above quantity of gas at 20° F. is put through it.

Cold gas carries more heat units per cu. ft., and warm gas carries fewer heat units per cu. ft., when other factors such as pressure, quality, and barometric pressure remain equal.

The accompanying chart shows how gas volume varies with temperature. The variation is in proportion to the absolute temperature of the gas. Absolute temperature equals the Fahrenheit temperature plus 460° F. So 0° F. equals 460° abs., 40° F. equals 500° abs., 60° F. equals 520° abs., etc.

You can readily see from the above that the vapor meters will not give an accurate measurement throughout the year, particularly in your territory. The customer will have the advantage in cold weather, and if your meters are calibrated for gas at 60° F., it is doubtful if you will break even, except possibly in Mid-summer. —Ed.

Arkansas

We would like to have help with our heating problem.

We have a 10 hp. boiler, vertical type, with 44 tubes 30" diameter. It was made for burning coal and we would like to convert it to butane gas.

For two years we have been burning another tank gas known as pentane, which is a lower grade fuel and which must have an air compressor to form the tank pressure. This worked very satisfactorily but it is not available any more and we want to burn butane, using same burner if possible.

T.L.S.

You have not given us enough information for us to be of much assistance to you. We are not familiar with the burner you now have, and know nothing of the pressures used with the pentane gas, size of orifice, size of burner parts, or air which may have to be mixed with the pentane before it reaches the burner.

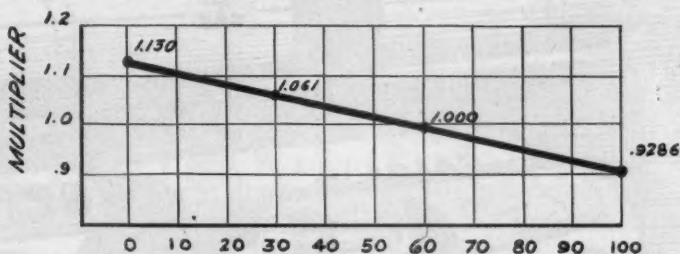
From your description, the pressure of the butane when it reaches the burner may be lower than the pentane pressure was. Other items which were used in vaporizing the pentane may have required a special burner.

We believe it would be best for you to contact the manufacturer of the boiler and obtain his recommendations. Perhaps the company that furnished the pentane burner would know how it can be altered to handle butane and give satisfactory speed. —Ed.

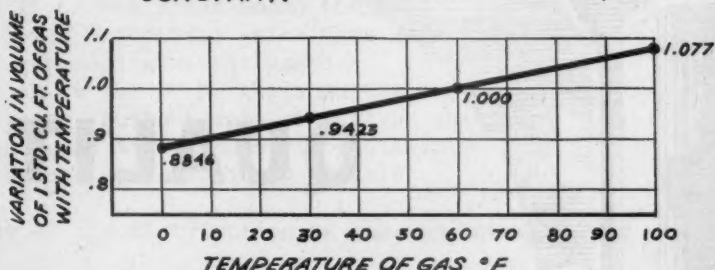
Illinois

I have a problem I would like you to answer for me. We use bottled gas for cooking, but we've run into some problems which make us very unhappy with it.

MULTIPLYING FACTORS FOR CORRECTING THE VOLUME OF GAS MEASURED AT A GIVEN TEMPERATURE TO THE VOLUME AT 60° F.



EFFECT OF TEMPERATURE ON VOLUME OF 1 CU. FT. OF GAS ORIGINALLY MEASURED AT 60° F. AND ATMOSPHERIC PRESSURE AT SEA LEVEL. HEATING VALUE REMAINS CONSTANT.



First is the fact that, as the bottle becomes empty, our kitchen is filled with a strong, distasteful odor. Naturally, I am aware that this is due to an additive, but what should the dealer do in order to prevent the strong odor from escaping into my house?

Second is the problem of not knowing just exactly when the cylinders are going to be empty. My wife arose on the morning of Christmas Eve to roast a 30-pound turkey, and found she was practically out of gas. Isn't there some kind of meter that can be installed to prevent this?

W.D.

The dealer can overcome the strong, offensive odor in the old cylinder by cleaning the cylinder occasionally. The strong odor is brought about by an accumulation of odorant-carrying oils and heavy ends which have gradually collected in the cylinder. Each time the fuel in a cylinder is used up, a small quantity of heavy ends and oils remain and do not vaporize. Odorant builds up in these oils, and as the last bit of LPG in the cylinder is vaporized, it is over-odorized.

The condition can be corrected by injecting about a quart of L. P. gas into the cylinder, rinsing it around to absorb the oils, then inverting the cylinder, opening the cylinder valve, and blowing the liquids out. This blowing out should be done in a safe and remote spot, as the oils—and the offensive odor—may linger in the ground

for some time. Bad cases may take more than one treatment to cure.

To overcome the second problem—running out of gas unexpectedly—we suggest the use of two cylinders and an automatic "throw-over" device. Such devices automatically transfer withdrawal from the cylinder that has been emptied to the other cylinder, and indicate on a small dial that the first cylinder is empty. This dial may either be at the cylinder, or a remote type indicator is available which can be installed inside the house. —Ed.

Minnesota

Attached please find our orders covering 72 subscriptions for each of our employes in our four corporations.

I understand that this safety program began in your February issue, and would appreciate if you could expedite our subscriptions so that we may begin this program at the time the regular subscriptions arrive on a regular subscription basis.

HOME GAS COMPANY
Joseph H. Reagan
Purchasing Agent.

Dealers all over the country are subscribing for "Butane-Propane News" for all of their employes so everyone can study the safety lessons for regular safety meetings. —Ed.



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-SURE!



MARCH



Editorial Comment

WHEN LOUIS RUTHENBURG, of Servel, Inc., retired from the presidency of GAMA last fall, he cited the growth of the gas industry which has raised it to 6th place among the nation's industries and he listed seven objectives which have served as guides in the progress of gas during recent years.

As these apply as much to the L. P. gas industry as to utility operation, we quote Mr. Ruthenburg's objectives which, he emphasized, must be continued to maintain our position.

1. Continued improvement in the training of sales personnel.
2. Scientific study of the distribution of gas appliances and equipment.
3. Constant effort to improve installation and servicing practices.
4. Research and development of new and improved gas appliances and equipment.
5. Increased advertising, publicity and promotion in behalf of gas usage.
6. Greater attention to the role of gas and gas-burning equipment in new housing.
7. Better integration of nationwide promotional campaigns.

Railroad tank cars built for L. P. gas in 1952 totaled 2012, according to a February report by James K. Knudson, Defense Transportation Administrator.

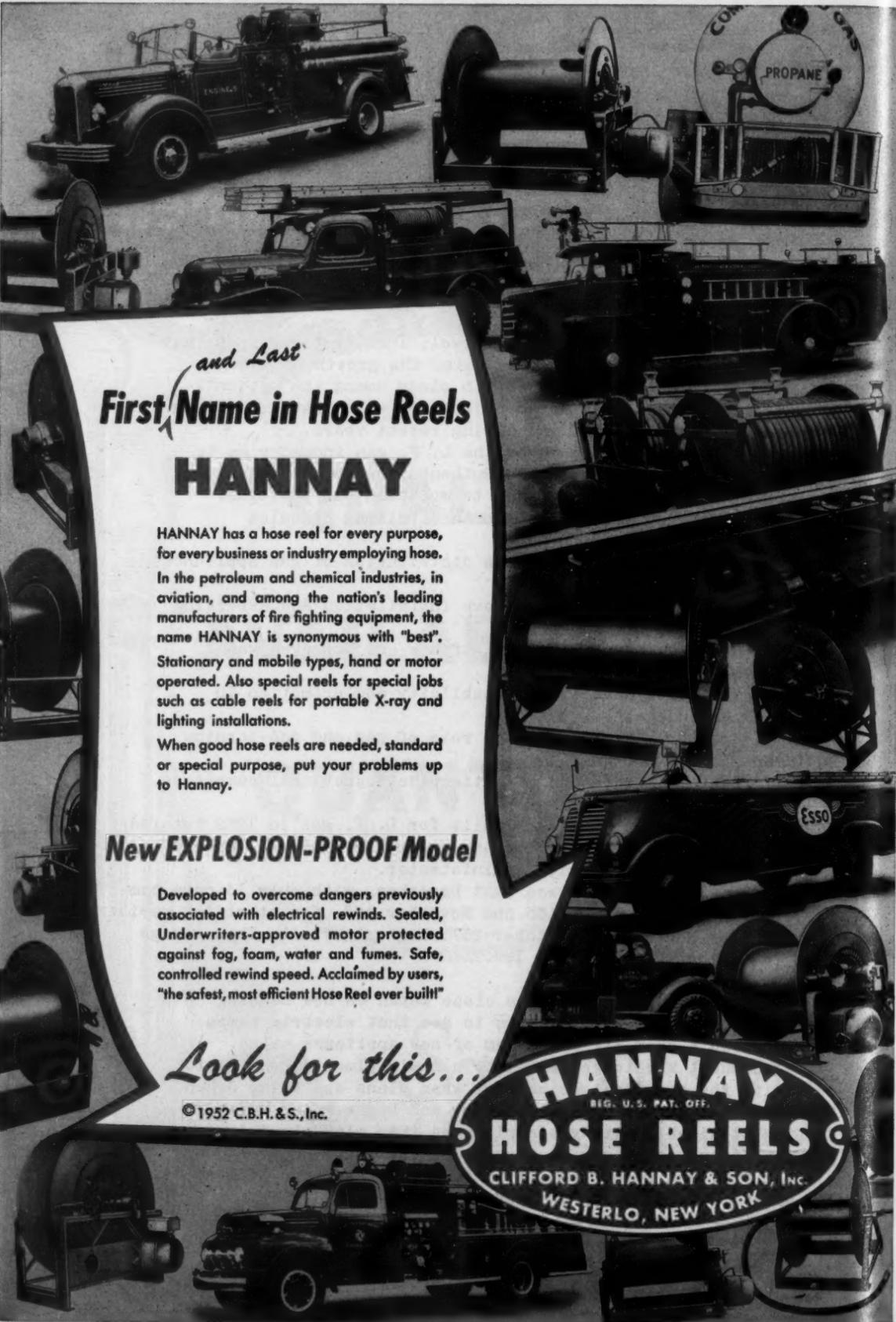
The low month was last December, with only 13 cars completed. July showed 105 and November 106, for other low periods. August had 228 and October 257, highest of all. The average over the 12 months was 167.

Smart dealers will keep a close watch on new housing construction in their localities to see that electric competition doesn't skim off the cream of new appliance sales.

The best way to get LPG into a newly planned home is to work with the architect or builder when plans are being drawn. By demonstrating the greater economy and higher user satisfaction obtainable with gas appliances than with electric ones, many an installation can be programmed far in advance.

But if you don't go after this rich field, you'll lose it. The electric boys are on the job!

Ed.



and Last
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Stationary and mobile types, hand or motor operated. Also special reels for special jobs such as cable reels for portable X-ray and lighting installations.

When good hose reels are needed, standard or special purpose, put your problems up to Hannay.

New EXPLOSION-PROOF Model

Developed to overcome dangers previously associated with electrical rewinds. Sealed, Underwriters-approved motor protected against fog, foam, water and fumes. Safe, controlled rewind speed. Acclaimed by users, "the safest, most efficient Hose Reel ever built!"

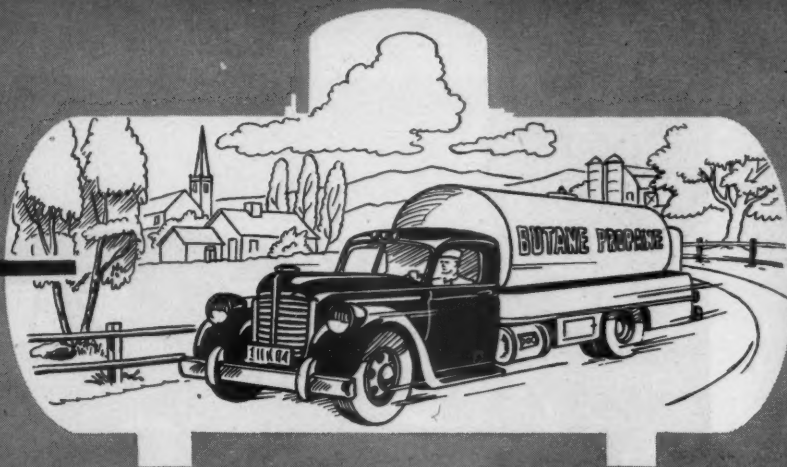
Look for this...

©1952 C.B.H. & S., Inc.



BEYOND

THE MAINS



One Insurance Problem

One of the growing headaches of the L. P. gas business is the rapidly increasing cost of Workmen's Compensation Insurance. Nobody who looks at life as he should wants to deprive any employe of the protection to which he is entitled as he performs his daily work for his employer, but the situation is getting out of hand due to reasons which employers can do something about.

The insurance companies are not highbinders. They must operate at a profit, or their policies are not worth the paper on which they are written. They do not make exorbitant profits—these are limited by state laws, and the companies are allowed to collect only enough in premiums to cover their claims, necessary operating expenses, and a reasonable profit.

But there is an alarming tendency for judgments resulting from claims that go before juries to reach astronomical proportions. There is urgent need for legislation that will place reasonable limits on awards for industrial injuries, punish claims grafters, and hold in check the size of fees which may be collected by claims attorneys. This is just another glaring example of the error of going to sleep on our opportunities as citizens while our laws are being drafted.

Our recourse in this respect is to use our influence, both as individuals and as groups, in forcing our lawmakers to provide corrective legislation. It can be done, without hurting employes, and to the lasting benefit of the employers and the employed.

The other factor contributing to the high total of employe compensation claims is subject to more intimate and immediate correction. No operator needs to wait for George to do it, or team up with George to get it done. Accident

claims can be reduced by reducing the number and frequency of accidents. This, as has been shown by experience in industries far larger and more hazardous than ours, can be done by taking the necessary steps, under constant pressure from management, to make safety a part of every employe's job.

Accidents are the most expensive waste of human and financial resources to which we are subjected. Looking at it from the adding machine viewpoint, safety does not cost—it pays.

Incentive

You never can tell how far a frog will jump until you tickle him in the right place—possibly in the pocketbook.

One of our friends in the L. P. gas business, who prefers not to be mentioned by name in this connection, took over a going operation with 14 employes in May, 1951. To make things nice for everybody concerned, he arranged for a division of profits into three equal shares, one share for himself, one share for the local manager, and the remaining share to be divided among the other employes. At the end of the year, each of these shares amounted to about \$12,000.

That gave the employes some new ideas. They weeded out some deadwood, doubled the volume, and at the end of 1952 they had almost three times as much to divide into shares for the owner, the manager, and the group of 11 employes who had done the year's work.

There is food for thought—possibly even for sermons—in this little bit of history. But since sermons are not popular, and thinking involves effort, we leave it with the reader at this point.

Karl Abell



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TRUCKS ENGINEERED FOR YOUR PAYLOADS! Chevrolet trucks are designed for the job they will do—engineered from tires to axle, springs, clutch and power plant to do that job with the greatest efficiency and lowest cost. You don't waste money on too heavy a truck or too light a truck. You buy the *right* truck for *your* job!

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GREAT TRUCK FEATURES! In addition to the many *NEW* things you'll find in these 1953 Chevrolet trucks, you'll also find many great features yet unmatched by other makes of trucks. Features such as Flexi-Mounted Cabs, Unit-Designed Bodies, Ball-Gear Steering and many others help make Chevrolet Advance-Design trucks your greatest buy. Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

TWO GREAT VALVE-IN-HEAD ENGINES—the Loadmaster or the Thriftmaster—to give you greater power per gallon, lower cost per load. **POWER-JET CARBURETOR**—for smooth, quick acceleration response. **DIAPHRAGM SPRING CLUTCH**—for easy-action engagement. **SYNCHRO-MESH TRANSMISSION**—for fast, smooth shifting. **HYPOID REAR AXLE**—for dependability and long life. **TORQUE-ACTION BRAKES**—on light-duty and medium-duty models and on front of heavy-duty models. **TWIN-ACTION REAR BRAKES**—on heavy-duty models. **DUAL-SHOE PARKING BRAKE**—for greater holding ability on heavy-duty models. **CAB SEAT**—with double deck springs for complete riding comfort. **VENTI-PANES**—for improved cab ventilation. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—for easier handling. **UNIT-DESIGNED BODIES**—for greater load protection. **ADVANCE-DESIGN STYLING**—for increased comfort and modern appearance.



BUTANE-PROPANE News



A New Perspective



The office of the Blue Grass Butane Co., Lexington, Ky. The "Kur-Mor", new tobacco curing unit, is demonstrated in the show window on the right.



Augspurger and Kennedy show the basic components of their tobacco curing unit. The burner, Barber Jet Flow Z-11, is shown in place and removed. The outer shell of the heat exchanger is 14 in. in diameter and 2 ft. high. Heat is dispersed through the shell and through 3 in. stove pipe each 10 ft. long with built-in air scoops. Mr. Augspurger is holding the lid which makes the unit completely enclosed when in operation.

By J. A. Scott

SOME dealers somehow find the time to take a good, long look at their businesses in perspective. The relation of one part to another, and the relation of the sum of the parts to the community show up in the form of a picture. The picture may be a little gem, all the parts fitting together harmoniously, adequately supplying their share of the community's needs for heat and power. On the other hand, some part may stand out because it has too much red, and taking care of some vital need of the community may be emphasized because it is not shown at all.

One evening back in 1950 the Blue Grass Butane Co. was examining its own business in perspective. Charles E. Augspurger, president, and Martin L. Kennedy, secretary-treasurer, found that an investment of \$600 in bathroom heaters was giving a rather pleasant picture a restless effect. The



Charles E. Augspurger and Martin Kennedy making a live demonstration on the Walter Land Farm, Lexington.

heaters were nice little jobs, but they were just not moving.

In further examining the perspective of the Blue Grass Butane Co., Charley and Martin found that nothing was shown on taking care of a particularly vital need of the community for L.P. gas heat. Every year toward the end of the summer the farmers of Fayette county were burning tons of coke to cure tobacco when they would much rather have been burning thousands of gallons of L.P. gas.

That evening Charley and Martin had one of the non-selling heaters hooked up in the office just to see what it would or would not do. There was nothing wrong with the heat performance; enough was being sent out to turn a coolish Kentucky bathroom into a California sunroom.

"You could dry out a ton of tobacco just from this pipe," said Martin as he held his hand over the vent pipe.

Thinking of dry tobacco leaves floating about in curing barns, Charley replied, "We'd have to close in that open flame first. Make a drum of sheet metal around it and run pipes out the sides."

That night the Blue Grass Butane Co. fitted a sheet metal casing around the heater, cut six holes in the casing, and inserted a 3-in. stove pipe in each hole. After placing a lid over the casing, a new tobacco curing unit was on the way for Burley tobacco growers.

"Looks like we got something here," said Charley as he opened the front door of the office to let out some of the heat

In analyzing their chances of successfully marketing a tobacco curing unit of the type just designed, Augspurger and Kennedy considered the needs of their potential customers. In late August and early September the Burley tobacco growers cut the crop in the field, wilt it on scaffolds, and then hang it in barns to cure. The curing process involves drying out the leaves, the rate of the death of the leaf being in proportion to the rate of drying.

During the death of the leaf, chemical reactions take place which appear as changes in color. First the leaf changes from green to light yellow, then to light brown and finally to dark brown. The relative humidity determines the rate of the change in color, so that when the humidity is high the tobacco will change to a dark brown before the death of the leaf. If the relative humidity is low, slowing down the rate of change in color, the leaf may die before the changes in color have taken place, since the leaf remains the color it is when the life process ceases.

Slow Process In Past

For the past 20 years the trade preference has been for the light brown colored Burley tobacco as contrasted to the dark brown preferred for cigar leaf. Since the Burley farmers all desired the attendant higher prices, the practice of "firing" tobacco was adopted as a means of controlling the color. The growers used charcoal, charcoal briquets, or petroleum coke in stoves, salamanders, oil drums, lard cans, or pits dug in the barn floor. The fuel was kindled outside the barn, carried to the container inside the barn, watched continuously, and the resulting ashes gathered up and deposited outside the barn.

Since none of the heating units had adequate and even spread of heat, all developed a flue effect which produced too much heat near the fire and too little heat away from it. The color of the tobacco would vary with the distance from the heat. Also, since most of the heaters used open flames, tobacco flyings that floated in the air caught fire from the open flame, rose on the draft of warm air to set the entire crop on fire. Along with the danger of fire, the prevailing method of curing had the defect of lack of flexibility. Sudden changes in the

weather could not be met with corresponding changes in the amount of heat dispersed.

In analyzing their situation, Augspurger and Kennedy saw that their design had a good chance for success since it was based upon a closed flame, an even spread of heat, and instant control of the quantity of heat dispersed. Further improvements were made in the details of the design. A Barber "Jet Flow Z-10" was substituted for the bathroom heater (for no particular reason these heaters later sold fast). Air scoops were introduced into the pipes at each joint. For complete safety a Minneapolis-Honeywell pilotstat 585-C was incorporated with a "Baso" built-in manual control valve.

Made Eight Tests

Eight test units of the new tobacco curer were made and set up in one of the curing barns on the Robert Lowery farm. A 500-gallon tank was installed outside the barn and a 3/4-in. supply line run underground to a stanchion on the driveway inside the barn. A Fisher 932 "Husky" regulator was used to step down the pressure in the branch lines which were either 3/8-in. copper or 3/8-in. flexible metal hose.

Mr. Lowery was able to vary the amount of heat dispersed so that he could keep the relative humidity to between 65% and 70% which experiments at the University of Kentucky Agricultural Experiment Station have shown to produce the best cure. Mr. Lowery reported that the season's curing had been the easiest and the most effective during his 18 years' experience with tobacco. He also stated that he had been able to sleep at night (humidity is at its worse around 2:00 a.m. when charcoal or coke fires usually burn out), that he had not had to provide labor for starting and watching fires, removing ashes, and that his tobacco had been colored a beautiful light brown throughout the entire crop. During the curing season, which lasted 14 days, Mr. Lowery used 635 gallons of propane at a cost of 14 cents per gallon.

An additional experiment was made by the University of Kentucky Agricultural Experiment Station which gave a report similar to Mr. Lowery's. The University commented in particular upon the even spread

of heat through the stove pipes and mentioned that the design was so simple that it was hard to understand why no one had thought of it before.

Formed New Company

With favorable experiments accomplished, Charley and Martin decided to go into production. They named the curing unit the "Kur-Mor", contracted the fabrication of the heat exchanger element to a Cincinnati sheet metal firm, and formed the Burley Burner Corp. for assembling and marketing the units. The stove pipes are bought on the open market.

In marketing the Kur-Mor the first step was to get in touch with present customers who had been asking about some means for curing tobacco with L. P. gas. In these cases sales were simply a matter of saying, "Here it is." In other instances Charley and Martin would make live demonstrations, most of which resulted in orders for a complete set of equipment. Many customers were reached by mail with a brochure which contained a picture of the "Kur-Mor" and told what it would do. Demonstrations were made at the field days which were held by the University of Kentucky Extension Service in cooperation with the local county agents. In these demonstrations the local L. P. gas dealer was present to quote installation prices.

A few of the Kentucky dealers who have sold and installed the Kur-Mor are: Ashland Oil and Refining Co., Campbellsville; Tingle Appliance Co., Georgetown; Mid-State Bottled Gas Co., New Haven; L & K Gas Service, Corbin; Home Appliance, Mt. Sterling; Farmers Fuel Gas Co., Cynthiana; Irvington Gas Co., Irvington; Superior Gas Service, Columbia; Ideal Butane Gas Co., Munfordville; Manchester Gas and Service, Manchester; Dickerson Propane Gas Service, Owenton; Mid-West Bottled Gas Dist., Cold Spring; Farmers Supply Co., Berea.

Each dealer has his own individual methods. The Dickerson Propane Gas Service noted that many farmers congregated in the court house yard on Saturday afternoons. One Saturday afternoon just before tobacco cutting time, the Dickerson people set up a Kur-Mor there and had 13 sales that afternoon.

Potential Load Enormous

The average cost of an 8-unit set-up complete with piping and 500-gallon tank is around \$500. During an ordinary curing season which runs from late August to the middle of September if one-third of the tobacco growers in the state of Kentucky were to use L. P. gas to cure tobacco, the summer load would run around 14,000,000 gallons.

Now, as Charley and Martin look

Left to right are shown Martin Kennedy, secretary-treasurer, and Charles E. Augspurger, president, Blue Grass Butane Co., talking with prospective customer, W. C. H. Wood.





One-third of the tobacco farms in Kentucky, above, would build a new summer load of well over 14,000,000 gallons. Burley tobacco is also grown in Michigan, Indiana, Wisconsin, Missouri, and Tennessee.

The ultimate goal of the Kentucky L. P. gas dealer—setting the tank in place to fuel a bank of Kur-Mors.

at their business in perspective, they see that the picture has changed from what it was back in 1950. The non-selling heaters have disappeared, and where a blank showed up in regard to taking care of the community's particular need for gas heat in curing tobacco, now a good likeness of the Kur-Mor shows up.

Should Survey Customers' Needs

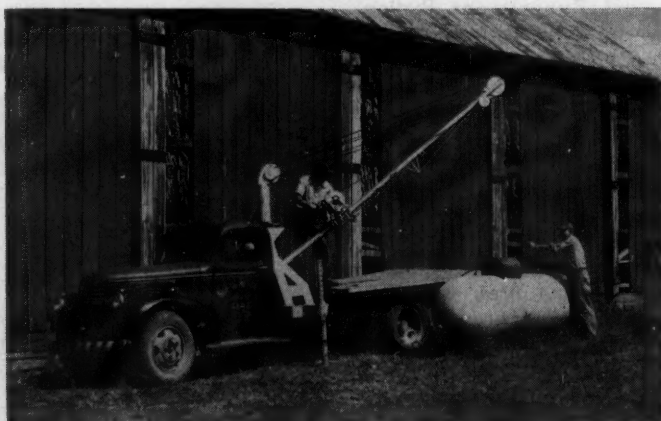
Charley and Martin believe their experience illustrates a principle. The L. P. gas dealer can increase his summer load by making a list of all the uses for heat his particular community finds necessary. If some particular industry is not using this fuel, he should find out why. If L. P. gas is not being used because the equipment has not yet been designed, the dealer should not wait for someone else to design it. He might see if that white elephant he has on his hands won't do the trick. It might be as simple and as sure-fire as the bathroom heater was in producing the Kur-Mor.

And a good, long look at a business some evening won't hurt a thing. Just see how one part of the business is related to the others and how the sum of the parts are related to the community. If the picture shows the need for improvement, then get out that bathroom heater and start changing the picture.

Charley and Martin came to Kentucky in 1946. Both were from Iowa where Martin had been in the structural steel business and Charley had graduated in forestry from Iowa State College before entering the 15th Air Corps from which he emerged as a major in 1946. A friend interested Charley and Martin in the L. P. gas business, and on a southern tour Lexington looked particularly good. Lexington has grown from 49,000 to 110,000 (if you count everybody within a 3 mile radius from the center of town), a lot of Eastern money is spent there, the livestock and tobacco market combine to give it the reputation of being the third largest marketing center in the South, and the winters are cold, very cold.

Fresh Viewpoint Helped

So, Charley and Martin started out with the financial backing of Dr. Guy Sloan and Mrs. LaRue Sloan, of Bloomington, Ill., and in giving a good account of themselves have presented the industry with a good summer load builder, the Kur-Mor. Perhaps, coming to Lexington as outsiders helped give Charley and Martin the opportunity to see things with a fresh view, to get that good perspective which now includes not only a fine L. P. gas dealership but a manufacturing business as well.





Cottage style structure which houses showroom and office.

New Homes Offer Best Market *says Connecticut Dealer*

By ALBERT S. KESHEN



Mrs. Beatrice Sturtevant, manager of company.

TRUCK drivers and deliverymen for a bottled gas dealer who are trained to sell appliances as well as take refill orders have an opportunity to double in brass for their own benefit in higher personal earnings as well as giving their company a better chance to build up volume. This is self-apparent since the drivers are first on the scene, have a chance to observe what the accounts need, and take a stronger personal interest in the customers, whom they see regularly, than the average salesman does.

Operating on this basic merchandising principle, Country Homes Gas Co., Inc., of Norwalk, Conn. has made special efforts to train its crew of five deliverymen in the sales end of the business. These men are given a 10% commission on every appliance they sell, in addition to their base salary and \$5 bonus for each new gas ac-

count obtained. Result is that the boys are alerted toward cashing in on every chance that presents itself toward making those extra sales.

Phillip Leveille, head of the delivery staff, explains how this operation works out. "Our best leads come from new homes and as we work our routes we keep our eyes open for new cellars and construction. The aim is to contact these new owners before somebody else has a chance to get to them. The builders or plumbers on each job give us the name of the owner and we contact him for an appointment at our showroom. Or in many cases we will make a date to see the man or wife in the evening at their home; and these appointments are scrupulously kept."

Lists of new house building permits are obtained from the town building inspectors and even realtors and other business firms contacted regu-

WAIT ??? WHY ???

PRICES LOW! STOCKS COMPLETE!

Ranges - Water Heaters - Space Heaters
Refrigerators

COUNTRY HOMES GAS CO., Inc. Tel. 6-3480
DANBURY RD. (Route 7) NORWALK, CONN.

MOBIL-FLAME BOTTLED GAS

Brrrr!... WINTER!

Act Now for Winter Kitchen Comfort

NEW GAS RANGE? ... WATER HEATER?
SPACE HEATER?

MOBIL-FLAME BOTTLED GAS

COUNTRY HOMES GAS CO., Inc. Tel. 6-3480
DANBURY RD. (Route 7) NORWALK, CONN.
Courteous, Dependable Service to This Community for Over Twenty Years

WALK! DON'T RUN!

WE HAVE THEM

RANGES (large selection) - WATER HEATERS, Etc.

Mobil-Flame Bottled Gas

ARE YOU READY FOR SPRING?

COUNTRY HOMES GAS CO.
Norwalk-Danbury Road (Route 7) - Tel. 6-3480 - Norwalk, Conn.
(Mile Beyond Merritt Parkway)

Postcards, tying in with seasonal subjects, go out to prospective users.

larly so as not to miss any sales leads which the deliverymen fail to observe. Thus, careful coverage is kept of every possible opportunity to contact newcomers.

Country Homes covers a 15-mile radius outside of Norwalk, an area of growing, suburban Fairfield county adjacent to New York City, which is experiencing expanding new home construction. There is no city gas available in this section outside of the city district so that folks are generally receptive toward hearing about what is available in propane gas and appliances.

The company's 2000 regular customers are contacted at least once a month for refill orders in the residential accounts, with more frequent calls to industrial and commercial users. Deliverymen cover separate routes and everyone in making his stops gets in a word now and then on appliances which he thinks the customer might need. He also points out that there is a liberal trade-in allowance for that old stove or range and likes to show manufacturers' literature and other detailed description of the attractive appliances on the market.

Cottage-Style Showroom

Whenever possible, the prospect is urged to visit the company's cottage-styled showroom and office on the Danbury road, which is easily accessible to motorist traffic, with plenty of parking space available in front and back. This eye-catching structure with its landscaped grounds and all-window glass front permits plenty of natural light to stream in and can be seen easily from the road. There a generous assortment of various types of appliances—stoves, space heaters and kitchen cabinets—can be easily inspected in the 30x60-ft. sales room.

An interesting feature of this showroom is the utensil corner where a wide variety of kitchen utensils, small appliances, clocks and pots and pans are displayed. This merchandise can be purchased separately and is not necessarily tied in with major appliance orders. The section has been a means of drawing in housewives so they may have the opportunity to look over larger fixtures while they are there. Peak of callers is around Christmas from people who are in the market for these smaller items as gifts but the corner pulls all year round.

● Deliverymen Trained to Sell and Backed up with Constant Advertising Program

OFFICIAL TIME TABLE

NORWALK SOUTH NORWALK AND NEW YORK

Effective April 1 to 26, 1952

MOBIL-FLAME
Dependable
BOTTLED GAS SERVICE
for
Cooking, Water Heating, Refrigeration

COUNTRY HOMES GAS CO., INC.
Danbury Rd. Norwalk 6-3480

THE NATIONAL BANK OF NORWALK
"The Four Pillars"

SMALL ENOUGH TO KNOW YOU
LARGE ENOUGH TO SERVE YOU
STRONG ENOUGH TO PROTECT YOU

Mortgage Loans — Personal Loans
2% Paid on Savings Deposits
Checking Accounts—Safe Deposit Boxes
51 Wall Street Norwalk, Conn.
Member F. D. I. C.

Display space is carried on the front of railroad time-table.

Mobil-flame

The Quality Brand Bottled Gas with All the Extras!

TWO CYLINDERS EXPERTLY INSTALLED

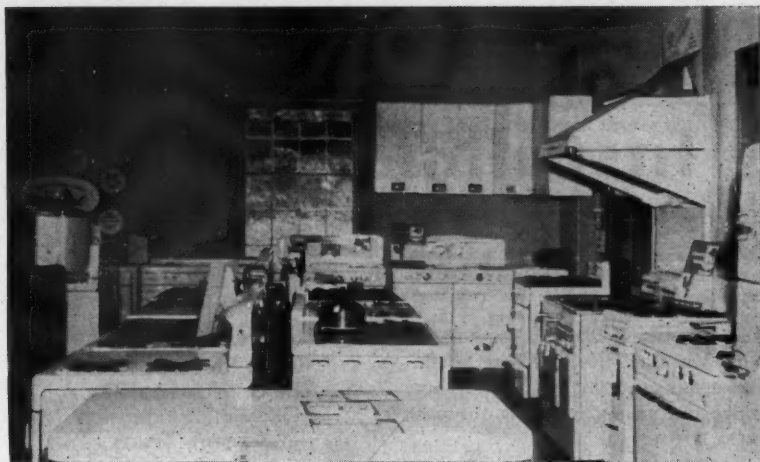
SEE US
RANGES, WATER HEATERS, REFRIGERATORS

Country Homes Gas Co., Inc.
Danbury Road (route 7)
Norwalk 6-3480
25 Years Dependable Service

Ads in local newspaper are contracted on a year-round basis.



Utensil corner of sales room with smaller kitchen items of interest.



Sales room with samples of latest models of appliances and kitchen equipment.

The prompt service provided at any hour of the day or night is a valuable means of getting and keeping business. Country Homes guarantees to answer emergency calls at any time around the clock. For this purpose the company is listed under three telephones in the telephone directory, besides the business phone. After normal business hours, contact can be made either at the homes of Mrs. Beatrice Sturtevant, manager, Lester Crosby, head of the service department, or Mr. Leveille.

For servicing, two trucks are provided besides the three regular gasoline trucks. The service section which occupies part of the main office is equipped with all of the necessary spare parts and tools to perform quick and efficient repairs.

Loading Platform in Back

The 100-lb. cylinders are received from the Socony-Vacuum plant in nearby Norwalk at a loading platform in the back of Country Homes' showroom-office building. There two to three trucks at a time can be loaded with a fresh supply for customers whose empties are deposited there after the return trip.

Rates are gauged for two types of users. There is a flat installation charge of \$19.75 for installation with the automatic tank change; and \$14.75 for the manually operated type. Equipment is leased out under a leasehold contract, with repairs and maintenance assured without extra charge by the company.

A vigorous and well-rounded merchandising campaign is carried out

throughout the year, using popular media, in an attempt to remind accounts of the facilities available as well as serving as an opening wedge to get new business.

A barrage of postcards is sent out regularly, with peak of mailings in the winter. These cards always have a different message such as, "Now is the time to buy appliances while prices are low and stocks complete," or, "With winter in the offing the occasion is appropriate to think of kitchen comfort by getting that new gas range, water heater or space heater." The mailing list is obtained from names of existing accounts or from names gathered by the staff; no professional lists are purchased.

Because of the many commuters living in that area, the company has

found it expedient to take a one-inch display ad in the time-tables of the New York, New Haven and Hartford Railroad. This copy always remains standing and bears a general message on the bottled gas service available.

Radio spot commercials are utilized twice a week, Tuesday and Friday, over station WNLK of Norwalk. The broadcast runs for 6 months throughout the year, starting in the winter season, with the gas and appliance story beamed to listeners.

Country Homes runs a large display ad in the yellow classified business section of the telephone directory, carries a small standing ad in the various county newspapers and mails out calendars supplied by the manufacturers to a select group of customers each year.

Truck loading up with filled cylinders for a regular route.



Installment Credit In 1953

INSTALLMENT credit in 1953 indicates that the average butane dealer has problems confronting him which did not exist during the past years.

Changes have been taking place rapidly in retail credit selling with a steady increase since the discontinuance of Regulation W. From all indications this upward trend is likely to continue for some time to come.

On the other hand, we have seen the percentage of collections to outstanding decrease from month to month. Whether or not this drop in collections is a "long, gradual slide" or just merely returning to pre-war normal levels is not known, but more than likely we will see just how the general trend develops during the coming year.

Let us consider some of the changes caused by government credit controls. When Regulation W was discontinued on May 7, 1952, an increase in competition was immediately noticed. Also, the volume of credit sales began climbing. This was mainly the result of lower down payments being required on most types of merchandise, longer credit terms in which to pay off the balance, and more aggressive credit advertising on the part of the retailer.

This trend is continuing and in some cases where lax credit policies are followed is causing a definite in-

by Sterling S. Speake
Retail Credit Specialist
The University of Texas
Division of Extension
Austin, Texas

crease in collection problems. All of this naturally causes the average consumer to have a tendency to overbuy, to return merchandise, to take advantage of liberal credit policies, and to follow some other unusual credit practices. But, even with some of these credit headaches, the suspension of Regulation W has generally been accepted as a good thing. It has given the retailer a free hand to sell his products on a basis wherein a greater amount of goods can be moved and at the same time he still can maintain and possibly increase the net profit.

Most LPG dealers feel, and I have talked to a number in my travels over the country, that Regulation W had some good advantages, but they had much rather operate without it in effect. In discussing this matter recently with a Texas operator it was learned that even though his total sales volume had not been increased as greatly as he had expected, it was likely to increase and as with many other creditors his percentage of collections on his accounts receivable was continuing to decrease a little month by month.

There are many problems affecting installment credit as we go into the busy season of 1953. L. P. gas dealers will find more difficulty in evaluating credit applicants because of our present economic conditions with a large number of defense jobs involved, with increased calls for military personnel, a new President of the United States, and other factors. With a profitable consumer market still ahead we can expect many to continue to apply for credit, especially installment credit covering higher priced items.

Another problem that will cause many sleepless nights for credit department personnel concerns "a shifting population." One of the biggest difficulties in installment credit is keeping up with the customer. Last year, for example, according to the United States Chamber of Commerce, one out of five persons changed his address. Where credit customers are moving from one area to another, it definitely requires a constant vigilance over them to maintain a strong credit organization.

Possibly one of the biggest problems for LPG dealers in handling installment credit in 1953 deals with the high cost of living. People must meet living expenses and with living costs at such a high peak it makes it difficult for the average credit customer to pay all of his expenses and then meet his installment obligations as agreed.

The value of the dollar has continued to drop from year to year and according to the Bureau of Labor Statistics, every dollar the consumer owns today is worth approximately 53 cents on the dollar compared with 1939 levels when it was valued at 100 cents on the dollar.

The consumer's buying power has dropped because prices have skyrocketed. This has been caused by the government pumping more money into circulation. Unless this

IN THE WAKE OF REGULATION W

Since Regulation W was discontinued in May, 1952:

Collections have declined.

Competition has increased.

Credit sales have climbed.

Lower down payments are common.

Longer credit terms are extended.

More dealer credit is available.

• **THIS IS THE FIRST OF A SERIES** of articles by Mr. Speake on Retail Credit and Collections, a subject which he is highly qualified to handle.

His prominence as a retail credit specialist has placed him in the Industrial and Business Training Bureau of the Extension Division of the University of Texas, and he is a frequent speaker at industry meetings.

Articles by Mr. Speake will appear for the next several months.

—Editor.

practice is discontinued, the value of the consumer's dollar will likely drop still further.

The lack of previous credit experience on the part of a certain percentage of prospective credit customers is another problem that is sometimes hard to handle. A young individual just starting out on his own, who has never had any credit experience and applies for an account for the first time, creates a situation that requires skill on the credit manager's part.

Shall the credit applicant be turned down or shall the account be approved? That is the \$64 question. If the contract is rejected it is possible a sale has been missed and a future customer lost. Yet, on the other hand, if the contract is approved without any credit information to base a decision upon, there is the possibility of opening an account that will become past due. A great deal of thought should be given to this type of credit applicant and a thorough job of analyzing the risk should be applied.

Increasing Number of Installment Obligations

An increasing number of installment obligations by a vast number of credit customers will be another problem for dealers in 1953. Often the applicant has already established too many other installment accounts and his total payments will more than absorb his pay check. Certainly it will be difficult for the customer to meet any further installments and some place along the line some of his creditors are going to be by-passed.

Recently, I was in a credit bureau talking with the manager when an irritated debtor stormed into the office and demanded to know why he had been turned down for a loan at the bank. The bureau manager, upon properly handling the individual, explained that possibly the debtor had too many other obligations which he was paying on at the present time and even though his accounts were current, an additional obligation would make it difficult for him to meet all of his accounts as promised.

The debtor agreed and then proceeded to exhibit a long list of his indebtedness showing other accounts he owed besides the ones recorded on the credit bureau records. This case is just one of the many that credit managers and credit bureau managers will be experiencing in the coming year.



Living high—can't eat and meet all his installment obligations.

Suggested Solution For Handling Installment Credit

Some suggested solutions to the many problems of installment credit for 1953 are here presented, based upon ideas and methods practiced by many successful creditors.

Consideration must be given to past experience in the credit field, with government regulations, sound pre-war credit extension, changes in consumer demands, continued increase in credit transactions, changes necessary to meet competition, and changes to handle increased production of consumer goods.

The first suggested solution for handling installment credit for the coming year calls for a more complete interview with the credit applicant. Proper credit procedure must be exercised with a comprehensive conversation with all new prospective credit customers in order to secure the necessary information of vital interest to the credit granter.

Just taking down the name and address of the applicant and hoping to find out other information through various outside sources will not suffice. More and more retailers are learning that the best place to find out valuable personal information is from the customer, himself.

Now we find, for example, that creditors are asking for the name and address of *two* nearest relatives, instead of the usual one. The idea, of course, is to secure the name of a relative from each side of the family, so that one will serve as a check against the other in attempting to locate skips.

The need for securing information from the applicant during the interview and having an understanding with the applicant cannot be over-emphasized.

Thorough Investigation of Applicant

The second solution that is suggested for better installment selling in 1953 is to have a thorough investigation made of the credit applicant. It is highly important that the creditor be more fully aware of the customer's paying habits with other merchants and the number of outstanding obligations that exist.

In many cases it will be necessary to ask the credit bureau for a more up-to-date check-up on the applicant's credit record. If the customer's record has not been checked within the past six or eight months, there



More complete interview.

is a good possibility other accounts have been incurred and in borderline cases this situation would be a determining factor as to whether the account should or should not be opened.

The so-called "eyeball" method or "looking the customer over" must be discarded and a credit investigation conducted in order to really analyze the credit risk.

If the customer is a newcomer to the community, then it is important to have the credit bureau secure credit information from the customer's previous residence, by telephone or wire if there is a rush, or by letter if it is an ordinary request.

Some dealers have made the sad mistake of approving the sale or contract before securing the credit report and the practice has been expensive.

Another point that is often overlooked in installment selling concerns the fact that the account is secured. This fact should not be the reason for failure to obtain a credit report to learn the customer's paying habit.

A third suggested solution that might be important for installment credit in 1953 deals with a more careful evaluation of the credit risk. Merely securing the credit information and the credit report will not be the answer to approving the contract. The proper analysis of the credit applicant's paying habits and a thorough study of the customer's ability to pay as agreed are essential to successful credit selling.

If the investigation reveals a bad credit risk, then careful evaluation of this customer would naturally be to reject the account, regardless of the amount of the down payment or the security involved.

Repossessions very often result from poorly analyzed credit investigations. An account that is properly evaluated in the beginning is more than half collected.

Sound Credit Policies

Sound credit policies within the organization could be a fourth suggestion for helping installment credit people in 1953. No store is too small to have a definite credit policy. Every credit operation should have some rules and policies to follow regarding the handling of installment credit. Definite credit policies will improve



More thorough investigation of applicant.

customer relations by reducing misunderstandings and by eliminating "special privileges" to certain customers.

A definite credit policy enables a firm to command better respect in the community, because customers understand the credit agreement and because customers will pay first the firm which seems more businesslike in its transactions. Certainly credit policies minimize the possibility of customers becoming "overloaded," by establishing adequate control measures and by requiring contracts in certain amounts to be properly approved. Here are some points to consider in the formulation of a definite credit policy:

1. Type of clientele served, if high-, medium or low-income group; if basically industrial, agricultural or diversified groups.



Uncle Sam pumping money into circulation.



Precision follow-up.

2. Credit policies of competitive business firms.

3. Sound credit principles as reflected in the light of past experience.

Specific decisions should be made as to the amount of the down payment that shall be required and the minimum weekly or monthly payment that will be acceptable. Also, a decision should be made as to the percentage of interest or carrying charge that will be in effect.

The type of legal instrument that is to be used for securing the account is important and the attitude the firm shall take regarding partial payments should be determined in these credit policies. Some firms have a policy as to the number of days that shall elapse before an account is considered delinquent, and a policy on what action is to be taken if an account becomes past due. Also, a policy on the type of past-due notice that is to be mailed. The number of days that are to lapse before a follow-up is made might also be included under credit policies.

Precision Follow-Up

A fifth suggested solution for installment credit in 1953 is to have a precision follow-up system. There should be a close watch on all accounts, both the good, paid-out type and the slow, past-due type.

Follow up on the good paying customers to see that they reopen their contract or add on more purchases. Keep this customer active! Follow up on the slow payer to see that the account does not get in too bad a condition. It is difficult for the average credit customer to catch up on in-

stallment payments once he is allowed to miss a payment or two.

Periodic Check-Up

The sixth suggestion concerning the handling of installment credit in 1953 might be to have a periodic check-up made of questionable "good" accounts. Sometimes a customer's account appears to run along rather smoothly for a period of time, but then payments begin to slow up and there is doubt as to the possibilities of this account remaining in a satisfactory condition.

A periodic credit report check-up will be very helpful, as it may reveal that the customer is getting behind with several other accounts or is overbuying and a closer watch should be put on this contract. Many firms make an automatic check-up on some customers frequently.



Buying power has dropped, prices have skyrocketed.

TO REDUCE CREDIT RISKS

- More complete interview with applicant.
- Thorough investigation of applicant's habits.
- Evaluate the credit risk.
- Establish sound credit policies.
- Make precision follow-up of accounts.
- Provide for periodic check-up.
- Educate customers on sound credit requirements.

Consumer Education

The seventh and final suggestion offered in this article on installment credit for LPG dealers for the coming year covers the important subject of consumer education. There are many people who know little about credit transactions. They need to be educated on the value of personal credit, how to establish their credit, and how to maintain a good credit record. Part of this credit education job is the responsibility of the credit manager and the retailer. More time should be spent with the new credit customer and a full explanation given to him on the advantage of meeting installment payments as agreed or of coming in to discuss the matter if something goes wrong. Printed booklets are sometimes given to new customers, which explains the credit terms and give the debtor a good sales talk on prompt payment.

A follow-up letter to the customer about three or four days after the contract has been approved, is an efficient credit practice. This letter thanks the customer for opening the account, reviews the terms of the sale, and expresses appreciation for the customer's future payments.

Summary

There are many dealers who are possibly following some of these suggestions in the handling of their installment accounts. If you are not, give them a trial.

Along with these items be sure to report all pertinent information promptly to the credit association. Many dealers have formed strong, efficient credit operations within their firms by individualizing credit office routine, adequate training of personnel, promoting cooperation among the employees, installation of modern office records and equipment, and allowing their credit policies to be known by the general buying public.

Thank You, Readers!

Hundreds of letters were received from readers commenting on the new, large size "Butane-Propane News." Approval was almost unanimous!

Space won't permit publishing them all, but the few reproduced here are typical. Our sincere thanks go to all who wrote us.—Editor.

The January issue of "Butane-Propane News" is certainly a nice one, and I think it is a much better publication in the new size than ever before. I was also very much interested in the historical article covering the 48 years of the industry...

I am sure you will receive many compliments on the great improvement in your publication, and I certainly wish you continued success in the fine job you have been doing.

Kenneth R. D. Wolfe
Vice President
Special Controls Division
Fisher Governor Co.
Marshalltown, Iowa

I have just finished clipping your current and first large size edition and herewith my sincere congratulations on a fine job. The new format is really attractive and the flexibility will be an asset which will counteract the additional cost of publication.

The historical summary was particularly enjoyed.

William F. Lowe
Secretary
Natural Gasoline
Association of America
Tulsa, Okla.

I received today the January issue of "Butane-Propane News" in its new format.

Having been a reader of this publication for a considerable number of years, I had become quite accustomed to the pocket-sized magazine; and in fact had anyone asked me, I would have said it was a mistake to change to the standard size of publication. However, after going through this January issue, I believe that a considerable improvement has been made by the change to the standard size.

Also, the sectionalization is creating a considerably easier source of information; and as I understand, has been a gradual change to the excellent method employed in this issue.

I believe that the continuing efforts of your staff will keep the publication, as it always has been, the only truly business publication for the liquefied petroleum gas industry.

C. M. Denton, President
Pacific Tanks Co.
Los Angeles, Calif.

My congratulations on the fine job your organization did in preparing the article entitled, "Liquefied Petroleum Gas—48 Years Old," in the January issue. You are also to be complimented on the new format of "Butane-Propane News," which is most attractive.

Ellsworth L. Mills
Vice President
The Bastian-Blessing Co.
Chicago, Ill.

I like your new size of "Butane-Propane News" and I am sure that your increased readability and better advertising display space will be profitable to your organization.

G. L. Brennan, Manager
LP-Gas Division
Warren Petroleum Corp.
Tulsa, Okla.

Please accept my congratulations on the first issue of "Butane-Propane News" with the new format. Although I liked the old book very much, I think you brought about a substantial improvement.

The new size will certainly

be helpful to you in giving greater prominence to pictures. It is also a big help to advertisers.

Robert E. Borden
Director
LP-Gas Information
Service
Chicago, Ill.

The larger size has one advantage, more and bigger pictures, but smaller size is easier to store as I have every copy for eight years. I would not know how to improve the best.

Orley W. Jones
Service Manager
Retail Division
Uregas Service, Inc.
(Westlakes)
Cairo, Mo.

Permit us to congratulate you on your January issue of "Butane-Propane News."

The larger size really looks good and after going through the whole issue we were pleased to see that even though you have to print so much more news and information to fill up this bigger magazine, it's still of the same high quality. After reading the small issue for almost 14 years, it will take us a while to get used to the larger one.

J. C. Chenevert
Secretary
Butane-Propane Institute
of Louisiana
Pineville, La.

You are pointed in the right direction. Just don't change.

J. W. Cummins
Sales Engineer
Consolidated Gas Co.
Sunnyside, Wash.

We take both trade journals but everyone around our plants seems to prefer yours.

The new format is very much to the good. True, the former had the handy "Readers Digest" pocket feature, but the other advantages of the new one more than offset that.

Your use of pictures and line drawings with good legends is high grade, but even more important is the readability. Especially the power articles are well written. They not only show knowledge of the subject but have the writer touch.

In only one other magazine have I found this readability on the subject, and that is in "Motor Service." However, they lack the familiarity with the subject that you folks have.

We send your magazine to most of our employees, including our head office girl. Figure it is good schooling.

Your "Letters" section is good and a feature most everyone reads.

Keep up the good work.

C. F. Butterworth
Vice President
Magic Gas Service, Inc.
Ortonville, Minn.

You've done a fine job of layout and I'm sure everyone enjoyed the recap on the history of L. P. gas and the men who have made it a great industry.

John A. Erickson
Manager
Magic Gas Service, Inc.
Appleton, Minn.

May I express my very deep personal appreciation for the excellent magazine which you publish and which has been of very material help to the fire service and others in education on L. P. gas hazards.

M. E. Woodworth
Flammable Liquids
Engineer
Committee on Flammable Liquids
National Fire Protection
Association
Boston, Mass.

Your magazine has improved along with the gas industry. As long as it keeps the pace, nothing more should be necessary.

Curry County Gas Co.
Gold Beach, Ore.

We like the larger "Butane-Propane News" very much—most of my business and expansion has been due to the information I read in your magazine for the last six years.

We can't think of any improvement at present—we think you are doing a swell job.

Louis M. Wells, Owner
Wells LP Gas Service
Central City, Ky.

It's hard to improve—it's good now.

Fuelgas Co., Inc.
Flint, Mich.

Congratulations on your new format.

You are now definitely in the big league of trade magazines. We eagerly await each new issue.

O. H. Runde
Secretary-Treasurer
Wisconsin Liquefied Petroleum Gas Association

I think you have all subjects covered and we always look forward to receiving your magazine. I do not see where you could make very much improvement. You have the best trade magazine that we receive.

Webb Butane Gas Co.
Piedmont, Ala.

Liked the "pocket-size" magazine better. Could carry it easier and it was easier to hold if reading in bed, etc. Go back to pocket-size issues.

Hartley B. Barker
Vice President
City Gas Service, Inc.
Little Chute, Wis.

Your new size magazine helps the fellows who have bad eyesight—I like it.

La Frenz Liquid Gas & Eng. Co., Inc.
Cedar City, Utah

No suggestions to offer unless it would be an article or series of articles to impress the bulk plant company with his obligation to police his own dealers to follow the safety rules.

Northwest Hydro Gas Co.
Minneapolis, Minn.

I like the January issue. I suggested this size about two years ago.

Joseph S. Fagan
President
Mutual Liquid Gas & Equipment Co.
Inglewood, Calif.

Positively you are doing an incredible job. Just keep up the good work.

Hydratane Gas Co., Inc.
Athens, Tenn.

Think your "Butane-Propane News" is as near perfect as can be.

Auto-Matic Gas Co.
Gainesville, Ga.

Actually, all of the subjects listed are very good topics and should be covered. To present a full program, with a thought to all sizes of operation, should be your aim. I'm sure that it is.

Ideal Gas Service
Wooster, Ohio

I would like particularly to see emphasis placed on "Credits & Collections."

Fannin-Baird Gas & Equip. Co.
Prescott, Ariz.

All items are of interest, except "Credits and Collections." This takes up valuable space.

Leidy's
O'Neill, Neb.

I find your section, "Letters to the Editor," most helpful in that they so often apply to many of us dealers.

North Florida Gas Corp.
Tallahassee, Fla.

Not much room for further improvement.

Nausemond Gas Corp.
Suffolk, Va.

I enjoy this magazine very much and cannot think of any improvements at this time. Seems to me you have very good coverage. I am hardly able to keep up on all you have now because of a lack of time.

L. P. Jobbers, Inc.
Virginia, Minn.

You are doing OK as it is. I certainly enjoy the Letters section. These guys have the same problems as the rest of us. I like to read their letters, then try to figure out an answer, then read yours and compare. Many times the comparison is surprising.

Tahoe Branch of Cedar Grove Gas Co.
Al Tahoe, Calif.

Change it back to the small size.

Blenker Hardware-Falls Gas Co.
Albany, Minn.

All the items listed are important and cannot be listed as to degree.

Bottled Gas, Ltd.
Vancouver, B. C.

As good a coverage now as we can suggest.

Basin Petroleum, Inc.
Durango, Colo.

Being relatively new in the industry, we find your coverage very good.

Perris Plant Suburban Gas Service, Inc.
Perris, Calif.

Keep up your normal progress.

William Coglier
Assistant to President
Petrolane, Ltd.
Long Beach, Calif.

Just keep going as you have been in the past 14 years.

Escondido Butane Co.
Escondido, Calif.

It's very good as it is—well balanced.

Lancaster Gas Co.
Lancaster, Calif.

No comments. I enjoy reading every issue.

Southeastern Natural Gas Corp.
Miami, Fla.

We're satisfied. Keep up the good work.

Sargent Propane Gas Co.
Sargent, Neb.

There is enough in it to last me a month. Am anxious to get each one.

Propane Gas Service Co.
San Fernando, Calif.

You have a very good spread and I can think of no important articles you do not cover. I enjoyed January issue "History of LPG in the Beginning."

Northwest Butane Co.
Arco, Idaho

If any added subjects are incorporated, you will have to increase the size of the publication again.

Suburban Gas Service, Inc.
Harrisburg, Pa.

It would be a hard job to improve "Butane-Propane News," we think.

Dri-Gas Co.
El Paso, Ill.

You have it well covered. Don't think it can be improved.

Pete Davie Gas & Appliance Co.
Ft. Collins, Colo.

Most good servicemen read "Butane-Propane News."

Fannin Gas & Equipment Co.
Wickenburg, Ariz.

We think you are doing a good job and do not believe we are capable of offering any criticism or suggestions.

Jonesboro Butane Gas Co.
Jonesboro, Ark.

Good magazine. We give all key employees copies.

Suburban Gas Co., Inc.
St. Augustine, Fla.

Just keep timely subjects coming the gas-man's way.

Missouri Midland Gas Co.
Brookfield, Mo.

It would be hard to improve it.

T. C. Wassenberg Gas & Appliance
Gillette, Wyo.



SAFETY MEETING • No. 2

Suggested Program

- 1—Complete the attendance record, noting any absentees.
- 2—Discuss safety conditions in plant and vehicles.
- 3—Analyze any accidents which have occurred since the last meeting—in particular, what should have been done to avoid them.
- 4—Discuss "The Nature of L. P. Gas" (which appeared in February issue).
- 5—Announce date, subject, sources of material, and study assignments for the next safety meeting.

Meetings become dreary unless the chairman keeps things moving along at a brisk pace. Items 2 and 3 can be handled most expeditiously from written notes and suggestions prepared in advance. These need not be long—merely an agenda to remind the chairman of subjects that should be discussed, and the individuals who should discuss them.

DISCUSSION GUIDE for "The Nature of L. P. Gas"

1. What characteristics do L. P. gas, gasoline, and natural gas have in common? How do they differ?
2. What are the essential differences between butane and propane?
3. How do these differences affect the requirements for containers?
4. Is it safe to store propane in a tank designed for butane? Explain.
5. Why is it necessary to use propane instead of butane for customer service in Northern climates?
6. Would you recommend using propane or a butane-propane mixture in connection with the LPGA "adequate customer storage" plan?
7. Why is it not permissible to fill a cylinder or tank completely with liquid L. P. gas?
8. What safety device is installed in all storage containers to prevent them from bursting under high pressure?
9. In what other parts of an L. P. gas storage plant should this device be used, and why?
10. Why should cylinders always be installed in the vertical position?
11. Should filled cylinders ever be stacked in the horizontal position?
12. How much more space does vaporized LPG occupy than the same amount of liquid LPG at the same temperature?
13. How much heavier than air is propane gas? Butane gas?
14. Following the escape of a considerable amount of L. P. gas in still air, would the area of greatest danger be downhill, uphill, or all around the point of escape?
15. With a breeze blowing at the time of such escape, where would the area of greatest danger be?
16. If you should receive a telephone call from a customer, complaining of a strong odor of gas in her kitchen, what would you instruct her to do? Then what would you do?
17. When does escaped gas become safe? How would you tell when it reaches a safe concentration?
18. Suppose that several gallons of gas should escape in the plant. What would you do to prevent an accidental fire or explosion?
19. What is an excess flow check valve, and how does it work? Where is it used?
20. Will a small leak cause an excess flow check valve to close?
21. In a liquid fuel line, which is the more dangerous—a small leak or a completely broken-off pipe?
22. Why is all L. P. gas odorized before being placed in a customer's container?

For answers to these questions turn to Page 121.

SAFETY

Is the Best
Policy

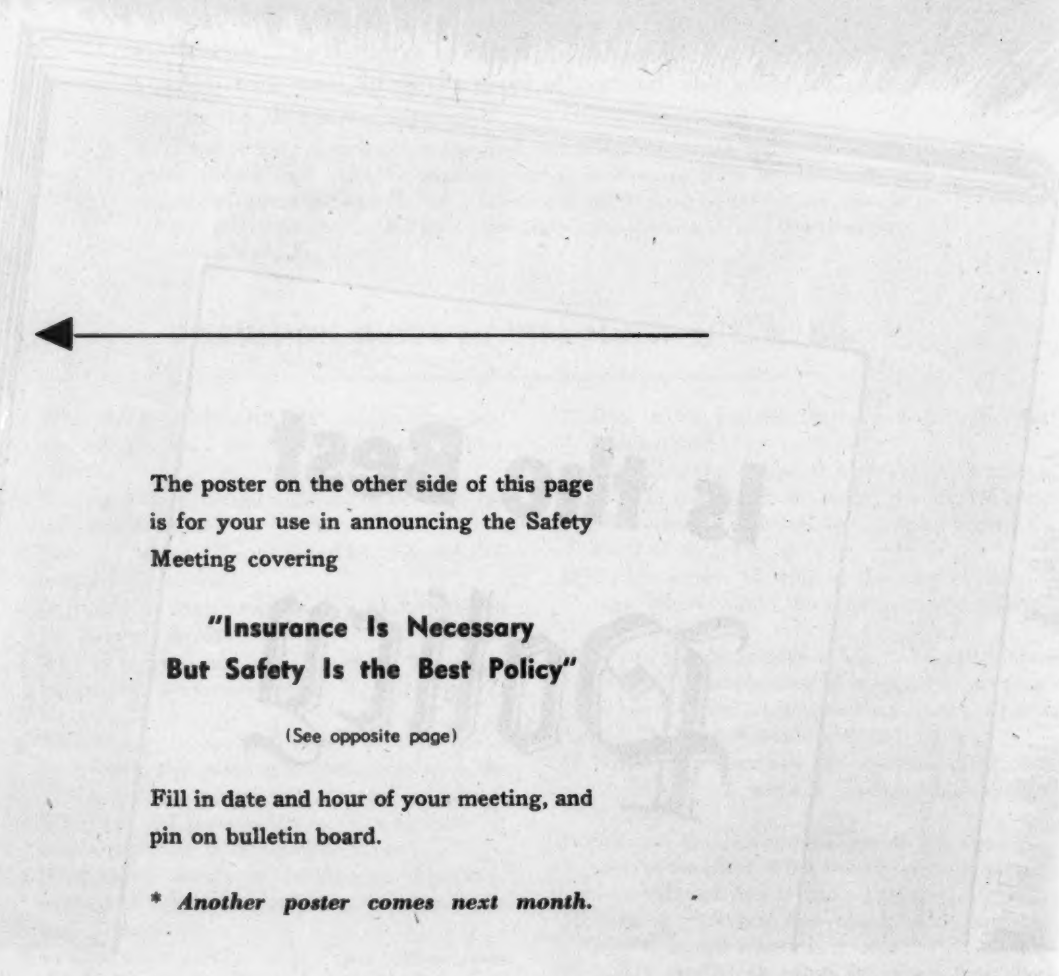


SAFETY MEETING

Date _____

Time _____

Place _____



←

The poster on the other side of this page
is for your use in announcing the Safety
Meeting covering

**"Insurance Is Necessary
But Safety Is the Best Policy"**

(See opposite page)

Fill in date and hour of your meeting, and
pin on bulletin board.

** Another poster comes next month.*

←



Insurance is Necessary but **SAFETY** is the Best Policy



LET'S start this discussion with the payment of a claim for an accident resulting from some phase of your company's operation. Just to make it interesting, let's consider an important accident—one in which you might be involved, and which, after a long, hard struggle in court, is settled for \$100,000.

Settlements of \$100,000 are not exactly rare these days. Juries are generous with other people's money, particularly when there is a large corporation on the paying end. Sympathetic juries are one of the principal causes of the present high cost of insurance. You may have noticed this rising cost in renewing the policy on your own automobile.

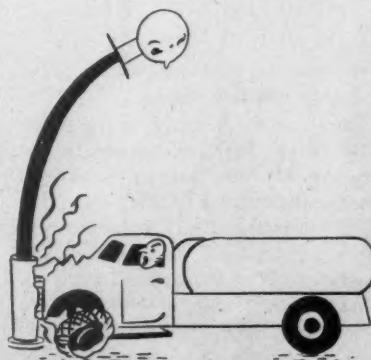
The accident that we will consider may be one of a number of types in which you could be involved in your daily work.

It could be, for example, personal injuries to you, caused by uncoupling a hose without first turning off the necessary valves, or the failure of some piece of equipment in the plant, due to neglect of maintenance.

It could be the death or serious injury of some other person, caused by improper operation of a company vehicle.

It could be a fire in a congested district, caused by a traffic accident in which the company's loaded delivery vehicle is involved.

It could be the loss of a customer's home, and the death or serious injury of some member of his family, brought about by an improper appliance installation made in violation



By Carl Abell

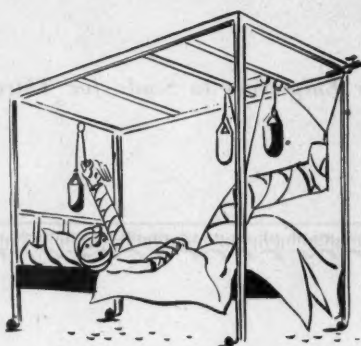
of the safety regulations or that had been tampered with by the customer.

It could be a fire or explosion in the company plant, possibly damaging property across the fence, or causing personal injuries to people in the neighborhood.

Do we hear someone say, "So what? It is covered by insurance."

There are factors connected with many accidents which insurance payments, no matter how high, can never offset. There is no way in which money can compensate for suffering, or for the loss of eyes, hands, or other vital parts of human beings, or for the loss of life. Insurance payments do not always offset the loss of time, or earnings, due to damage to physical property necessary in the conduct of a business. There is no way of paying for the loss of public confidence which results from unfavorable publicity.

Any accident of any kind which reduces public acceptance of L. P. gas as a safe and desirable fuel makes is harder for *your* company to operate at a profit, and limits *your* opportunity to advance in earnings. And every accident in the industry *anywhere* handicaps other operators *everywhere*. A recent LPG fire which killed people in Indiana got



accidents has a second, and actually more important, advantage that comes in connection with the factors mentioned above which can not be compensated for by insurance.

An understanding of the simple principles on which insurance is based will clarify the financial end of this situation. An insurance company is merely a means of pooling the resources of a large number of people (or businesses) so the effect of a really serious accident incurred by any one of the participants will not become a major disaster for that particular person or business. Each participant pays a premium based on his estimated share of the total risk.

The money collected as premiums from all participants must be enough to cover all claims as they arise, pay the necessary operating expenses of conducting the insurance business, and provide a reasonable profit. Insurance company profits are limited by law, and they are not large.

Operating expenses and profits can be held fairly constant, so the principal factor affecting the cost of insurance is the number and amount of claims which must be paid. Since the insurance company must collect enough in premiums to meet its claims, the best way to beat the high cost of insurance for everybody is to prevent the causes which result in paid claims—fires, explosions, damage to property, and personal injuries.

Claims against a business as the result of accidents are actually liabilities of the business. The company must settle all of these claims for which its legal liability can be proved. The insurance contract merely guarantees that the company will have the money to pay the claims, when the necessity arises, up to the limits stated in the policy.

Theoretically, over a long period of years the cost of insurance to a business should equal the cost of settling its insurable claims, plus its share of the insurance company's expenses and profits. On the average, this is true, but few companies ever follow the exact average in their insurance experience. They pay according to the average for their type of risk, but some companies are good risks, and others are much more expensive to the insurance concerns, and hence to all other companies of like class in the insurance program. Companies with good accident records pay for the extra expense of settling claims incurred by companies with bad records.

Since the cost of providing insurance coverage on companies having high accident records is unprofitable, and is obviously a burden with no corresponding benefits to the companies with good safety records, insurance companies weed out their bad risks, and refuse to renew their coverage on those which have proved too expensive to handle. No insurance company wants to gamble on a sure loser. Operators who have been refused insurance by one company have great difficulty in getting coverage from any other, and generally the premium cost is very high even if they can find a carrier. And an operator who cannot get insurance is practically out of business. So, often it is only a question of time until he will have an accident for which he cannot pay, and then the game will be over. In a very real sense, the company's insurance is assurance that the company will be able to provide jobs for employees in the future.

Let's see how close to home this whole situation comes. No "company," as such, ever had an accident. Accidents are personal and individual. With the exception of the few



headlines in the newspapers as far away as Los Angeles.

Returning a moment to the financial aspects of the situation, insurance costs in our industry have risen terrifically in the past few years. This is not because insurance companies are "highbinders," but because the cost of settling claims has increased. The practical way to reduce these costs is to reduce accidents. Reducing the number and seriousness of



which are the result of the elements—wind, floods, earthquakes, tornadoes, etc.—almost every accident happens only because some person does the wrong thing, or fails to do the right thing. Companies can be involved in frequent accidents only if the people in those companies have frequent accidents.

Now, what are the possible causes of high accident frequency in these various companies? Are they because the management does not pay proper attention to safety, or is the blame entirely on the employees? This can only be determined by analyzing the conditions in the individual company in relation to the



separate responsibilities of the management and the employee groups.

Logically and legally, the company is responsible for the safety of the physical facilities used in the business. This responsibility covers the design or selection, installation, and maintenance of the physical facilities at the plant, including buildings, tanks, pumps, compressors, piping, and everything connected therewith.

It covers the selection, equipping, and maintenance of all motor vehicles used in the business. It covers all fuel supply installations placed at customers' premises by the company, and whether we like it or not, it covers the related piping installed by customers or their agents, unless this responsibility is specifically transferred by means of official inspection by a representative of a regulatory body having jurisdiction over such installations.

The company is also responsible for informing the employees fully regarding the hazards connected with the storage, transfer, transportation, and use of the product, and for complete and competent instruction in the proper and safe handling of the product. It also includes instruction in the operating procedure to be followed in the use of all equipment which the employee will utilize in carrying out his particular job.

All of these responsibilities which are legally assigned to the company are the direct obligations of the management, but every employee has, in at least one respect, a share in the company's responsibility for the condition of the physical equipment. This is in regard to maintaining operating equipment in a safe working condition. If valves, pumps, compressors, or any other working equipment or protective devices in the plant develop defects which make them unsafe, it is the duty of the employee who first discovers the hazard to immediately take any possible steps to make the unit temporarily safe, even though it involves shutting down an important operation. He should then report the condition to someone who has authority to see that the appropriate corrective measures are taken.

Similarly, any defects which might make the company vehicles unsafe to operate on the highway, or which might allow fuel in transit to escape under dangerous conditions, should be reported at once to the person responsible for the safe working condition of the vehicle. Drivers are also given the responsibility for the safe disposition of any cylinders which develop leaks while in their custody, in accordance with the regulations set down by the management.

Employees are responsible for the

safe operation of the plant facilities, in accordance with the established safety regulations and the instructions issued by the management. Public laws and company regulations make the safe driving of company vehicles the direct responsibility of the drivers. Company regulations and the established safety codes require the persons who install the customer "systems" and appliances to make each installation according to approved safety standards. Likewise, there are recognized safe practices which must be followed in filling customer bulk storage tanks, and in exchanging cylinders at the customer's premises.



It is the management's responsibility to see that all employees carry out all of these obligations, in the interest of public and personal safety. The prevention of accidents requires a high degree of teamwork between management and employees. It requires correct instructions and sound company regulations, and the willingness of management to change either if they are found to be inadequate or defective. Above all, it requires constant care on the part of each individual to avoid conditions which might lead to accidents, and judgment and quick action to hold danger or damage to a minimum in case an accident should happen.

It has been frequently stated by authorities on safety that accidents can be prevented, and that all accidents not caused by God are caused by man. But in spite of all the work that has been done on the prevention of accidents, they continue to happen.

One of the most significant facts developed in accident prevention research is that some individuals are much more likely than others to be



involved in accidents. A few years ago the underwriters conducted a very extensive survey to determine the cause of traffic accidents. They found that 20% of the drivers cause 80% of the accidents in which motor vehicles are involved. Records of industrial accidents show the same alarming situation. When someone gets around to studying accidents in the L. P. gas industry on a similar basis, they will no doubt find that a very small percentage of individuals are responsible for a very high percentage of the accidents. This is already clearly indicated by the experience of some of the older and larger operating companies.

There is a word that describes these people who have more than the normal share of accidents. It is "accident-prone." This is not a nice word, because it indicates a deficiency in the mental make-up of the persons to whom it applies. They lack a proper sense of moral responsibility to the public, their employers and associates, and to their families and dependants. And possibly the accident-prone person is not too bright—otherwise he would see that he and those who depend on him are the principal victims of his own lack of moral responsibility.

Since individuals, and not companies, have accidents, it should be obvious that companies having bad accident records are that way because they employ people who incur frequent accidents. Even though most accidents are minor, insurance records show that people who have the most small accidents are the ones most likely to have serious accidents. These people simply do not have the habit of thinking and acting safely. Insurance companies do not look with favor on providing coverage for companies with records of frequent, minor accidents, because by the law of averages the habit of tolerating minor accidents leads inevitably to a mishap of disaster proportions. The companies which insurance organizations regard as desirable customers are the ones which carry on active safety training work, regard even a minor accident as serious, and consequently have exceptionally clean records. These are the companies that provide desirable employment opportunities.

The whole problem boils down to the way people feel and think about safety. If the management is not

seriously striving to keep the operation safe, there will be employees who unthinkingly allow themselves to become careless, and accidents will result. If the management is really serious about safety, but one or more employees fail to cooperate, the management must either cure or eliminate the unsafe employees, or those individuals will go on having accidents.

Handling of L. P. gas can be one of the safest occupations in the world. The experiences of many companies which have been long in the business prove this beyond a doubt. They prove also that the equipment in which the fuel is stored and handled, and the regulations governing the use of this equipment, provide basic

safety factors which would be a credit to any industry, no matter how mature or experienced it might be.

With our present knowledge of equipment and procedures, it is not the gas that is unsafe—it is the combination of gas and careless individuals. Safe operation is the result of a high degree of teamwork, with management directing the play, and each person carrying out his specified job according to the rules, thinking and acting constantly for the best interests of the team.

One poor player may lose the game for the entire organization. That makes safety the most important part of every job in the industry, and it is a responsibility that cannot be delegated to someone else. It is *your* job!



Plan for Safety

*As Announced in the
February Issue*

The "Butane-Propane News" Safety Department Program will include the following services and features each month:

A suggested outline for a complete safety training meeting to be held by the distributor-dealer during the month following publication, giving the central theme of the meeting, and listing the several points which should be discussed.

A staff-prepared article covering the subject matter selected for the coming month's meeting, with special application to the problems arising in the daily conduct of an LPG business.

References to sources of material for additional study and reports, which may be assigned to individual employees.

Related articles, when-available from outside sources, giving viewpoints and recommendations of insurance companies, state and local enforcement agencies, and others competent to discuss the safety problems of the L. P. gas industry.

Reports of successful safety programs which have been carried out by companies in our industry as available.

A monthly safety poster, dramatizing one subject pertinent to the operation of an L. P. gas business.

Tear out the accompanying poster and post it in a prominent place after filling in the date of your next safety meeting.

Problems for Discussion in April Safety Meeting

These problems are presented to give the worker a clearer picture of his responsibilities, show him the importance of following safety regulations, teach him to take the right action in emergencies, and show him the importance, to him, of the company's insurance program.

Questions are asked to stimulate thought along safety lines. These questions, and others taken from your own company's experience, should be discussed in connection with the safety meeting program in the April issue of "Butane-Propane News." Answers to these problems will be printed in the April issue for comparison with your own solutions.

Problem 1.

One Sunday morning, when the company vehicles were all standing in the yard, and the boss was at home in bed, an employee of an L. P. gas dealer came out of a nearby restaurant and smelled escaping gas. He found that the valve at the end of the liquid unloading line from the storage tank was iced over, and was leaking slowly from the outlet. The plant operator had failed to take one routine step that should have prevented this condition. What was it?

What possible hazards did this situation create? Are these hazards covered by insurance?

Name, in the proper order, all of the steps which the employee should take upon discovering this leak. What should have been done about the operator who left the plant before he had made sure that everything was safe?

Problem 2.

A driver was filling a non-code tank in a customer's yard. He disconnected the hose without first closing the valve between the hose connection and the tank, and there was no back-check valve at the tank end of the filler connection. A large amount of fuel escaped, and drifted down the slope toward the customer's house and the highway on which it fronted. The driver's hand was badly frozen by escaping gas, but by quick action he and the fire department prevented any accidents, both at the house and on the highway. What steps would you have taken in this situation?

Could the driver collect compensation insurance for his injury? Who would have been liable for other accidents, had they occurred? Could this situation have arisen if the customer's tank had been made in accordance with Pamphlet 58? Should a non-code tank ever be filled with LPG?

Problem 3.

Who is responsible for the results of a leak which develops in house piping installed by a customer, to which an L. P. gas dealer's serviceman connects a cylinder or bulk storage system and appliances, without first making a thorough safety inspection of the customer's piping? Does dealer's or custo-

mer's insurance cover any accident which might result from such a leak?

Regardless of responsibility or insurance coverage, is it ever "good business" to take a chance on the condition of the customer's pipe installation? If a safety inspection should be made, what specific items should be covered? What codes followed?

Problem 4.

The electric industry is governed by safety codes which are just as carefully worked out as those applying to L. P. gas. Electricians are carefully trained, and in almost all localities they must pass examinations and secure licenses before they can work on customer installations. Safety campaigns are carried on consistently by the electric utilities. In spite of these facts, every year the National Fire Protection Association figures show that many times as many fires originate from faulty, defective, or misused electrical installations as are caused by gas—and that includes utility gas installations as well as LPG.

Should we think that our low position in the fire loss table is good enough, or is it necessary for our industry to exercise still greater care to avoid any possibility of fires which might be caused by faulty installations or neglecting to follow regulations in handling L. P. gas? Why?

Problem 5.

Suppose that you are installing a new range in a customer's kitchen, and have everything connected up. What steps should be taken to prevent escape of gas before the valve is turned on at the tank?

Suppose that after you have turned on the tank valve, you return to the kitchen and find a number of the gas cocks on the stove have been turned on during your absence, possibly by a child in the family, and that there is a strong odor of gas in the kitchen. How would you proceed to eliminate all danger of a fire or explosion?

Would the operation of an electric fan in the kitchen be hazardous under above conditions?

If an accident should occur under these conditions, would your company's insurance cover personal injuries to you? Damages to the customer's property?



Final session of safety school at Alexandria, La. Front row, l. to r., R. D. Bushnell, Bushnell & Co.; Truman Adkins, safety engineer, Pan American Casualty Co.; Felix Cangemi, safety consultant, Justin Wilson & Associates; J. C. Chenevert, secretary, Butane-Propane Institute of Louisiana; K. E. Jones, director, Louisiana Liquefied Petroleum Gas Commission; C. M. Marshall and M. C. Young, inspectors for the Louisiana Gas Commission.

Louisiana Dealers Benefit From Safety Meetings

A series of safety meetings for all employees of distributors-dealers in the state who could attend, has been conducted by the Butane-Propane Institute of Louisiana recently. Others will be held next summer.



Keith Jones

The first group of meetings was held in Alexandria. It consisted of three evening sessions of about three hours each. Truman Adkins, who formerly headed the safety training program sponsored by the Texas Butane Dealers Association and conducted by the University of Texas Extension Division, was in charge of instruction, assisted by Justin Wilson and Felix Cangemi, safety consultants of Baton Rouge. The services of these men were provided through the courtesy of Pan American Casualty Co., of Houston, and their agents, Bushnell & Co., of Alexandria.

The last meeting was climaxed by a banquet, at which Mr. Keith E. Jones, director of the Louisiana Liquefied Petroleum Gas Commission, was principal speaker. He was high in his praise for the training given during these meetings, and emphasized the importance of them to the industry and to the public.

Officers of the Butane-Propane Institute of Louisiana are R. W. Anderson, president; Brozan Miller, vice president; J. C. Chenevert, secretary, and W. C. Bogan, treasurer.

Miniature LPG Exhibit Gives Cook-Burns Good Publicity

A novel booth display of the Cook-Burns Gas Co., Lovington, N. M., at a recent Lea county fair presented in miniature every phase of the company's operations except cotton gins. Shown were shallow-well irrigation, domestic service, cars, tractors and trucks converted to butane, and drilling rig services.

All of the tanks in the picture were made by hand by Joel Burns and Jerry Cook, president and vice president, respectively, of the company, and were assembled on the miniature

trucks, tractors and cars shown. They even tried with much success to portray exact replicas of their transports and bobtail equipment.

The booth was 8 x 16 ft. It made such a favorable impression that next year the company will arrange for space 16 x 16 ft. and will then show as additional exhibits miniatures of the LPG storage plant and office headquarters.

Pyrofax Gas Co. Names Walter Naumer President

Walter A. Naumer, prominent LPG official for many years, has been named president of the Pyrofax Gas Co., a division of Union Carbide and Carbon Corp., New York City, according to J. D. Davidson, chairman of the board of directors. He was manager of his company before this appointment to the presidency.



Walter Naumer

Currently, Mr. Naumer is a member of the board of directors of the Liquefied Petroleum Gas Association and chairman of the Northeastern District of the association. He has been a leader in many programs advancing the development and distribution of L. P. gas and is recognized as a high technical authority in this field.

Acquires Ownership of Turon, Kan., Company

Gene Fisher is now sole owner of the Turon Electric Supply Co., Turon, Kan., butane dealer for a wide surrounding territory. He acquired the interest in the company held by John Cox, of Kingman, Kan.



Miniature display of LPG equipment at New Mexico fair attracts wide attention.



Alfalfa dehydrator at Heame, Texas, provides an ideal means of helping to balance the winter-summer load. Consumption, about 10,000 gallons per year.

Planning the Consumer Bulk Plant

• Commercial, Agricultural and Industrial Installations

By Carl Abell

THE bulk plant installations to be considered in this article will be those commercial, agricultural, and industrial applications which are likely to come within the scope of the L. P. gas distributor. These range in size from the large domestic type tanks to the largest that can be served economically from the distributor's bulk plant, making use of his regular bulk delivery and transport equipment.

The discussion will not include service station installations for private fleets, or for the public sale of fuel to transient vehicles. These ap-

plications involve special problems, which will be covered in a separate article in a future issue.

Likewise, discussion of the very large industrial installations for regular and standby service, involving tank car deliveries and vaporizers or utility-gas-matching air-mix plants, will be included in another later article. Plants of these latter types are seldom served by distributors, and their design and operation are closely parallel to the piped town plant, so their treatment becomes logically a part of the future article which will be devoted to that subject.

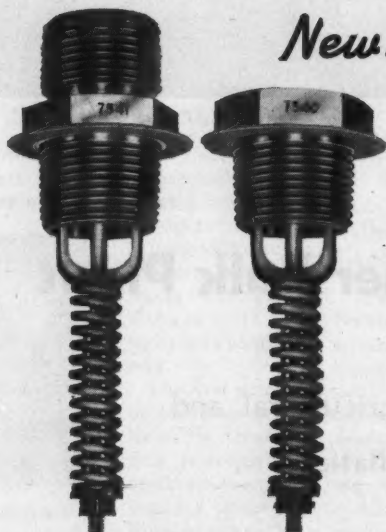
While the physical installation of the storage and transfer equipment in these commercial, agricultural, and industrial bulk plants is similar to and follows the same rules as the distributor's own bulk plant, there are certain other factors which should be taken into consideration in order that they may be fitted practically to the needs of the customer, and also into the economics of the distributor's scheme of operations. Properly planned, these accounts can prove very beneficial and profitable to the distributor, but if incorrectly sized, or operated on a basis

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1"	"T"	312 ⁺⁰ ₋₁₀ psi	1100 cfm



New! REGO DOUBLE CHECK FILLER VALVE

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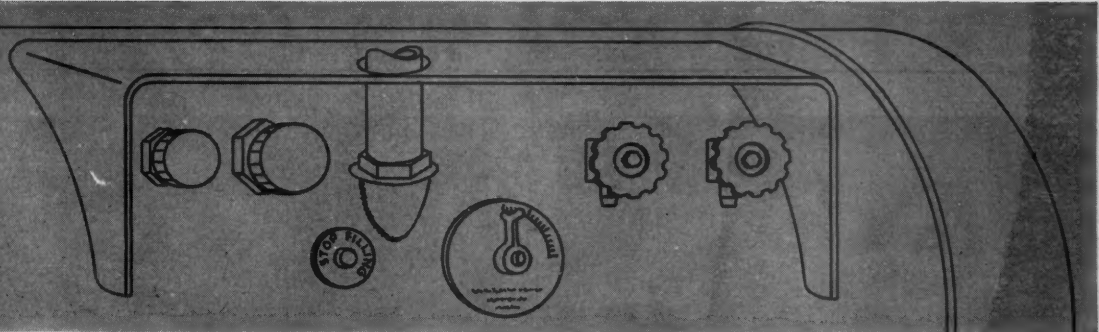
ing surface on the lower body to avoid excessive accidental wrenching of upper body during installation. This valve fits a 3/4" NPT tank opening, permitting flexibility of arrangement of filler, vapor return, liquid and vapor shut-off valves.

Fast filling rate of 19 GPM with only 10 psi pressure differential. Double check shut-off for extra safety in event of hose failure.



New! Rego Vapor and Excess Flow Valve

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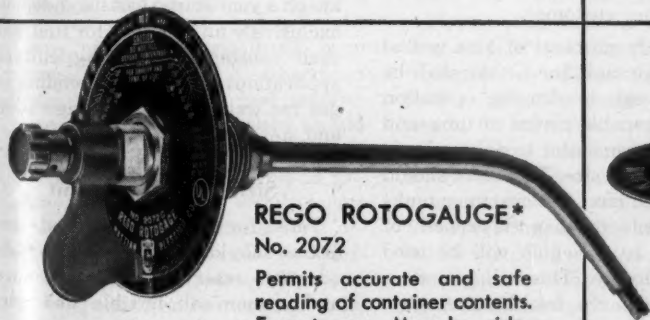
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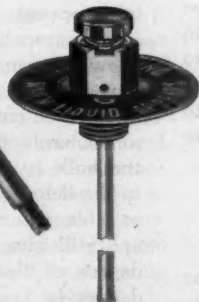
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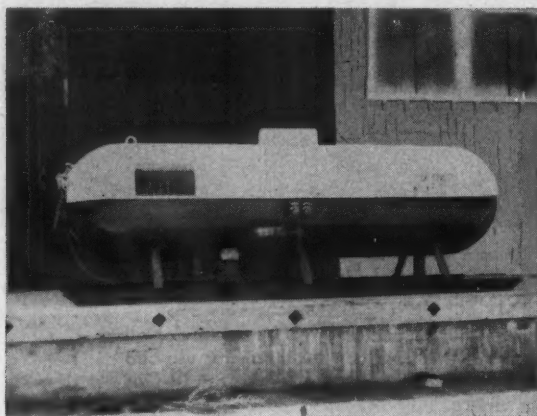
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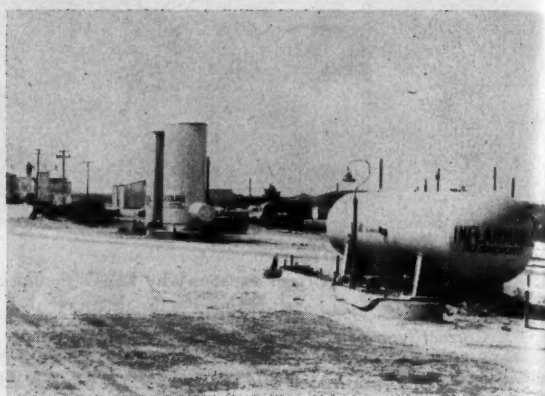
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A good bulk plant installation on a large ranch shows tank isolated from other fuel storage and well away from buildings, with ample protection from passing vehicles.

not compatible with the distributor's other delivery problems, they can easily become a serious handicap.

Of prime importance in planning and building these commercial, industrial, and agricultural plants are safety, size, and location. The problems of safety and location can be handled by following NBFU Pamphlet 58, the provisions of any state or local codes which may apply, and by working in collaboration with the local authorities having jurisdiction over problems of fire, zoning, etc. The problem of plant sizing must be arranged with the customer, and in incorporated areas it is advisable to take the local authorities into the discussion. They have the power to prohibit installations that do not conform to their ideas.

Similar Interests, Different Viewpoints

The customer and the distributor both have a direct interest in the size of the bulk plant, but they do not look at the problem from the same point of view. The customer wants to install the smallest and most economical plant that will assure him of an adequate and continuous supply of fuel *when he needs it*. The distributor wants the customer to install a plant of such size that he will be able to supply it with certainty, regardless of his other seasonal demands, and with reasonable delivery economy.

Agricultural installations in which the fuel is consumed, either exclusively or principally, during the crop seasons offer the simplest possible problem in this connection, as the delivery requirements do not conflict with service to domestic customers during the critical weeks of the winter heating peak. The distributor has the fuel, the delivery equipment, and the time to meet the requirements of the summer customer.

The only problem of size is that the storage tank (or tanks) shall be large enough to run the operation for a reasonable period of time, and allow the distributor to deliver loads of economical size. The effort should be made to have the customer tanks somewhat larger than the capacity of the bulk truck which will be used in the delivery. This will provide a suitable reserve for the customer, and still give the distributor some degree of flexibility in scheduling deliveries.

With the exception of the very large farming operations, these agricultural accounts can generally be served through large size domestic type tanks, either singly or in combination. The same applies to many of the commercial cooking accounts. Many of these, on highway locations, provide a seasonal situation similar to the agricultural customers, with high summer demand and low winter consumption. Few of these accounts require installations that dif-

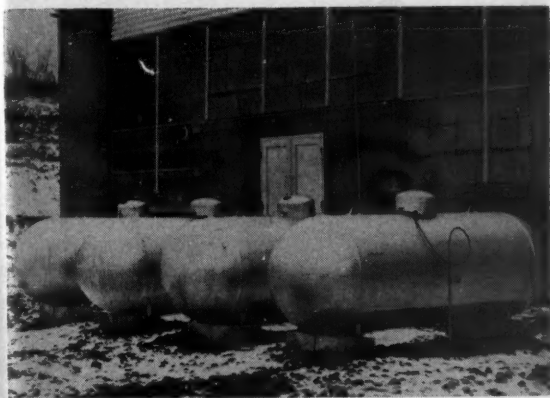
fer in important respects from the domestic installations with which the distributor is dealing regularly.

Applications in which fuel consumption is practically uniform throughout the year come next in the order of desirability. These include some of the commercial cooking and similar applications, heat for manufacturing processes which operate on a year-round basis and depend exclusively on L. P. gas for fuel, and such constant-demand agricultural applications as dairies depending on gas for water heating, refrigeration, and sterilization.

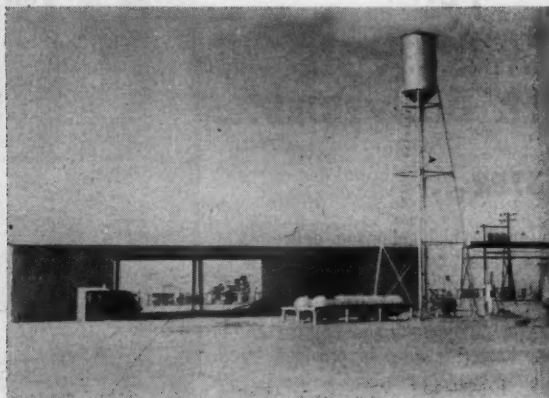
Sizing Is Important

Tanks for these constant-load operations should be sized to provide adequate reserve for the consumer, and economical, flexible deliveries for the distributor. In every case where the distributor has a winter-summer load balance problem, the effort should be made to install sufficient storage to last the customer through the longest anticipated period of peak winter demand, so the distributor's delivery equipment may be kept available to meet the other needs which always arise during cold spells.

These installations should follow the basic principles outlined in the "Adequate Consumer Storage" program of the LPGA. If handled in this way, these constant-load ac-



Domestic type tanks are sometimes used in multiple, to supply fuel for small industrial operations.



The fuel supply for a small cotton gin. Isolated from sources of heat and ignition, and protected from vehicular traffic by a substantial crash fence.

counts can increase the distributor's sales, and add more than their share to his profits, without presenting any special problems. The larger the storage that can be provided by these customers, the greater the advantage that can be taken of them in establishing a desirable winter-summer load balance.

Should Watch Winter Load

Any of these agricultural, commercial, and industrial operations which involve high fuel requirements during winter months should be considered with caution, and accepted only if it is possible to balance the delivery requirements somewhere in the distributor's operation with a comparable load during the off-peak season. The customer should also be required to install sufficient storage to be certain that his requirements will not complicate the winter delivery problem. Even the producers who sell direct to large industrial consumers get tough in respect to such peak-season loads. It is becoming increasingly common for these suppliers to require the customer to install three months' storage capacity before they will agree to sell them fuel.

Numerous industrial plants are now seeking "standby" service from the L. P. gas distributors. If the fuel is to be used only in case the utility service breaks down, or if it will be

needed for peak demand in the winter when the utility is short of fuel to meet its increased domestic demands, these accounts are seldom desirable for the L. P. gas distributor unless arrangements can be made to guarantee a certain regular consumption, and unless the customer's storage is adequate to permit handling the accounts without complicating the winter delivery problem.

There seems to be no good reason why an L. P. gas distributor should undertake to relieve a utility company's distress by passing on a shortage to his own customers. At least one producer who markets direct to industrial accounts is now requiring three months' storage capacity before accepting standby accounts, and is also requiring comparable summer consumption before guaranteeing to meet the customer's winter requirements. In self-defense, the distributor should strive to set up the same arrangements on these accounts.

There are a few cases where industrial accounts are looking for fuel for "peak shaving" use. This is a fairly uniform daily requirement, and falls in the same category as the plants which make exclusive use of L. P. gas at a constant daily rate. Storage requirements should follow the same rule—install tanks large enough to carry the customer over the critical winter peak, thus enabling the distributor to balance out his deliveries in line with the re-

quirements of his other customers.

While most standby and peak-shaving accounts will require air-mix or vaporizer plants in order to match utility gas, or to provide needed volume of fuel at low temperatures, these are merely additions to the plant facilities, and do not affect storage requirements.

Some customers who must use vaporizers to supply the needed volume of fuel will wish to use butane or butane-propane mixtures, and are likely to ask for tanks meeting the pressure requirements of these lower-pressure fuels. Since the tank installation is a long-term investment, and butane and low-pressure mixtures may not always be available, especially at desirable prices, it is advisable to consider using tanks of sufficient strength to contain propane. The heavier tanks will also be able to resist corrosion for a longer time, and are therefore a better long-term investment.

Follow the Code

The design and location of tanks and all connected facilities for any of these applications should follow Pamphlet 58, and such other laws and codes as may apply in the locality. Pamphlet 58 (paragraph B.5) specifies minimum distances which should be maintained between the tanks and adjacent buildings or the boundary lines of other property

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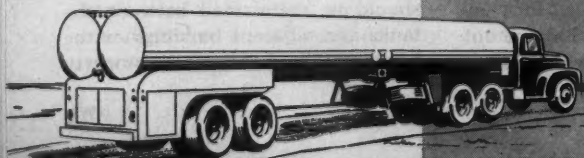
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Propane tank on top of Pike's Peak, Colo., which supplies fuel for heat and cooking at the Old Summit House. It provides a good summer load.

which may be built upon, and between tanks if more than one is to be used. These are *minimum* distances. Fire insurance companies prefer that the distances shall be greater than the minimum.

The "Recommended Good Practice for the Storage and Handling of Liquefied Petroleum Fuel Gases," a booklet published by the Factory Insurance Association, which should be in the possession of every distributor contemplating industrial sales (obtainable from Factory Insurance Association, Hartford, Chicago, or San Francisco), adds certain specific recommendations to the requirements laid down in Pamphlet 58. They suggest that tanks should not be located where they will be exposed to possible heat from combustible buildings, or to other fire hazards or nearby sources of ignition. They are definitely opposed to the installation of L. P. gas tanks where they will be exposed to possible danger from large volumes of readily vaporizable liquid fuel, whether in storage, in transit, or in use.

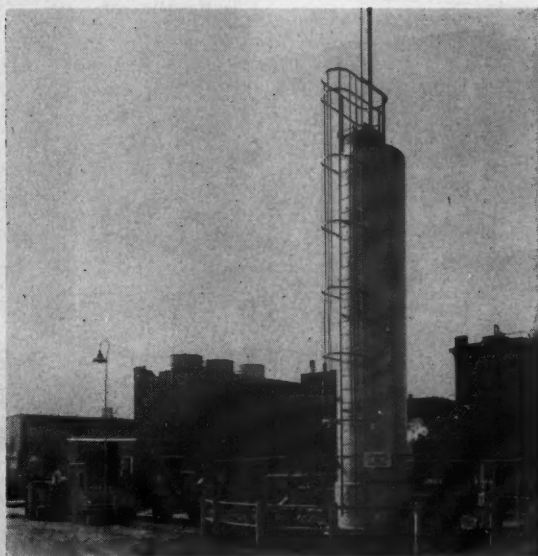
Design Plant For Easy Delivery

While they do not require the plant space for traffic which is needed in distributor bulk plants, these industrial installations in congested areas should be planned with special reference to the problem of handling fuel deliveries safely. Pamphlet 58 requires a minimum distance of 10 feet between any storage tank and the position of a tank car or truck while being unloaded. Practical considerations indicate that the distance should not be greater than is necessary. Obviously, the position of the truck while unloading should not expose it to truck or vehicular traffic through an alley or on a street.

If piping is used in the unloading system, it should be protected from all possible hazards. Buried piping should be below the frost line to prevent stress from the heaving of the ground during thaws. It should also be located where there is the least possible danger that it will be exposed to accidental damage due to digging, and it should be thoroughly



The way not to install a tank. Foundations are of blocks, stacked, and with inadequate reinforcement. Pump and piping not protected from passing vehicles. Pile of combustible rubbish near end of tank.



Vertical tanks conserve space in congested locations. Crash fence of cement-filled pipe posts and welded pipe rails protects storage facilities from heavy traffic in plant yard.

protected against corrosion. While these precautions are particularly important in respect to the unloading line, which carries fuel under high pressure, the same considerations apply to any service lines between the tanks and buildings. They carry lower pressure, but any undetected leak or accidental rupture will still create a hazard.

Install Excess Flow Valves

As an added precaution, all long pipe lines carrying L. P. gas under high pressure should be equipped with excess flow check valves at frequent intervals. Many consumers' bulk tanks are also equipped with externally operated internal valves at the fuel outlet. These are generally remotely controlled, either mechanically or hydraulically. The latter may be equipped to close the valve automatically in case of fire, as the result of melting of fusible plugs in the hydraulic control line.

Where fuel deliveries are made by truck through an unloading line, instead of connecting a hose direct to the tank, it is desirable to locate the terminal connection where it will not be necessary to back the truck to the unloading position. Statistics show that many more delivery accidents occur while backing the vehicle than when driving forward. The unloading connection should be protected by a curb, or by substantial crash posts, if it is located where the delivery truck, or any other vehicle, can come in the immediate vicinity.

Inlet piping is seldom used in the smaller agricultural, commercial, and industrial tank installations. These tanks are generally filled like any domestic bulk tank, through a direct-connected hose, using the bulk truck pump to make the transfer. While the traffic hazards mentioned above seldom apply to the agricultural and the commercial and industrial installations outside the congested areas, there are special hazards which do not appear on the surface. Tanks should not be located where it will be necessary to drive the delivery truck near a cesspool. Some day

the driver may swing over a little too far, and find one end of his truck down in a deep hole.

The installation of tanks, piping, and transfer equipment, if required, follows exactly the same rules as were outlined in the previous article dealing with distributor-dealer bulk plant design ("Butane-Propane News," July, 1952, page 55). Related valuable information on tank foundations and supports may be obtained from the article on that subject in the August, 1952, issue of "Butane-Propane News," page 96.

In addition to the regulations in Pamphlet 58, and the information given in the article on foundations and supports mentioned above, the Factory Insurance Association "Recommended Safe Practices" booklet calls attention to the need to make special provisions in mounting tanks on foundations to provide protection against the natural forces which insurance companies class as "acts of God." They recommend that the tanks shall be securely anchored to the foundations to resist earthquake forces, and also that they shall be mounted in such a manner as to permit expansion and contraction.

Engineering thought on these matters seems to indicate that the tank

should be strongly keyed to the foundation pier nearest the fuel pipes, and free to move back and forth on the other pier. This practice is widely followed, and is believed to meet both recommendations. Experience in the recent California earthquake also emphasizes the importance of adequate carrying capacity in the footings of the piers, as there was one case in which the pier at the pipe end of a tank sank four inches, and ruptured the pipe fittings.

The Factory Insurance recommendations also include the stipulation that "Adequate anchorage or pier height should be provided to prevent floating of the tank when the site is covered with flood waters; also provide barriers and fenders, to divert heavy floating debris." While many industrial, agricultural, and commercial installations will be made on sites not subject to flood, this possibility should always be considered when building on low ground. That even heavy steel tanks are quite buoyant is indicated by the fact that in several cases tanks buried two feet under the ground have come up and floated away during floods.

In locations where adequate space surrounding the tank is a problem, the use of vertical tanks is some-

Large domestic type tank supplies fuel for many applications on this dairy farm in the Midwest.



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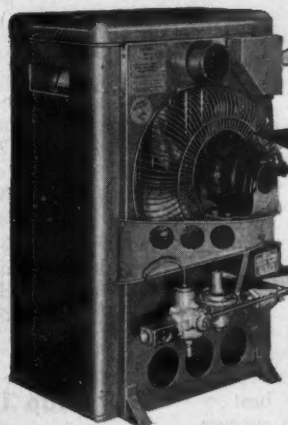
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times permissible. The foundation of the tanks presents the principal problem in this connection, as vertical tanks in exposed locations are subject to wind forces of great strength. Competent engineering advice should always be sought in designing these installations, and the approval of the local fire and building authorities is necessary.

Skid Tanks Often Used

The use of skid tanks instead of permanently mounted tanks is permissible in certain temporary situations, but their use in places where permanent installations can be made is discouraged, except for emergency service. The insurance people take the very logical stand that the hazard of using tanks that are not permanently mounted on substantial foundations increases in direct proportion to the degree of congestion in the surrounding area. They do not like the skid tanks in the neighborhood of buildings, but their use in connection with temporary and isolated situations, as in oil well drilling, or in isolated semi-permanent applications, such as water well pumping, meets with no great objections.

The matter of fire protection at large industrial L. P. gas installations is covered in both Pamphlet 58 and the Factory Insurance Association's "Recommended Practices" booklet. While water spray systems of permanently installed type are not required, they are mentioned favorably in both publications. Pamphlet 58 leaves the choice of manual or automatic control to the "authority having jurisdiction," while the "Recommended Practices" booklet states that the choice shall be made by the engineering department of the Factory Insurance Association.

Another publication similar in scope and value is Bulletin 11.45, Liquefied Petroleum Gases, Industrial Installations, published by the Factory Mutual Engineering Division, 184 High St., Boston, Mass.

These commercial, agricultural, and industrial applications coming within the scope of the distributor-dealer offer a valuable potential addition to the volume through the

plant, provided that the customer's storage facilities are planned so the service will fit in properly with the distributor's operating plan. The customer's storage plant should be planned with these economic factors in mind, and the actual installation should be carefully designed in the minutest detail to conform with the safety codes, insurance requirements, and state laws and local ordinances which may apply.

Launch Safety Program To Reduce Insurance Costs

The Texas butane industry, under leadership of the Texas Butane Dealers Association, is launching a statewide safety campaign in a determined effort to bring down the constantly increasing cost of workmen's compensation and public liability insurance. Decision to inaugurate the campaign came at a meeting of the association's safe practices committee at Mineral Wells on Jan. 29 and a tentative program was adopted for immediate start.

W. C. Warren, of Lubbock, chairman of the committee, presided at the session and sketched the rapid increase in premium rates for the two types of insurance, carrying of which is mandatory on butane dealers under state law. Within the last 18 months these rates have increased more than 30% and additional increases are in prospect, according to J. D. Wheeler, director of the Compensation Division of the Texas Insurance Department, who attended the meeting.

J. H. Winton, president of the Texas Butane Dealers Association, and a number of officers, directors and members who had attended the organization's Mid-Winter membership meeting the preceding day, remained at Mineral Wells to join in the safety meeting.

Full cooperation of the agencies they represented was pledged by the speakers, and association members individually pledged their best efforts to make the campaign successful. Many returned to their businesses prepared to launch the effort at once within their own organizations.

While the program as outlined will be broad, it will be along simple lines and designed for accomplishing accumulative results. One important

phase will be the review and analysis of accidents by all workers in the butane industry. Another will be study and review, at each dealer-level group meeting of employees, of a section of the safety regulations of Texas LPG Docket No. 1. Another will be an effort to completely screen all applicants for employment and to investigate the accident background of each. Employers will be urged to insist on periodical physical checks of employees, particularly those engaged in vehicle operation.

Under the program plan employee meetings will be held on company time and no employee will be asked to attend a safety meeting during off-hours.

New Standards Approved For Gas Industries

The American Standards Association, Inc., approved 87 standards in 1952, according to the annual report issued recently by Vice Admiral George F. Hussey, Jr., managing director. The increase brought the total American Standards in effect to 1264.

Company members of ASA now number 2337. Trade associations, technical societies and consumer organizations enrolled in ASA number 114.

Newly approved standards of particular interest to the gas industry included: Gas Transmission and Distribution Piping Systems, B31.1-1952; Approval Requirements for Domestic Gas Ranges, Z21.1-1952; Listing Requirements for Automatic Valves for Gas Appliances, Z21.21-1952; Addenda Z21.10b-1952 to American Standard Approval Requirements for Gas Water Heaters, Z21.10-1950 and Addenda Z21.10a-1951; Addenda Z21.13.2a-1952 to American Standard Approval Requirements for Central Gas Heating Appliances—Vol. II, Z21.13.2-1951.

New Home Construction Will Drop In 1953

An estimated 950,000 new homes will be started in 1953, according to published reports. This is slightly under the 1952 total.

Of the housing begun in the first six months of last year, 276,200 units were in metropolitan and 291,300 in non-metropolitan areas.

Our New SERIES 48E

Paracoil LPG* STEAM VAPORIZERS

FOR MEDIUM AND HIGH CAPACITY
LPG SYSTEMS

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- Patented Non-Freezing Condensate Drainage System! (*Patent No. 1826747)
- Tubular Type Heating Element Proven in Thousands of Heat Exchangers!
- High Output Capacity — Production Models Up to 6000 GPH Per Unit!
- Installed Entirely Outside the Tank — Easy Access to Heating Surface For Inspection!
- Can Be Used With Any Type of LPG Gas!
- Entirely Safe — No Gas Flames Used. Operates on Low Pressure Steam!

SPECIFICATIONS

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Shell.....Seamless Steel Pipe, A-53, Gr. A.
Outer Vaporizing Tubes.... $\frac{3}{4}$ " OD x 16 BWG Steel, A-214
Inner Steam Conveyor Tubes
 $\frac{1}{2}$ " OD x 20 BWG Steel, A-214
Shell Tube Sheet and Flange....Flange Steel, A-285, Gr. C.
Steam and Condensate Channel
Size A, C, & D—Cast Iron A-48, Cl. 30.
Size F to V incl.—Seamless Steel, A-53, Gr. A.
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ASME Stamped. Par U-69. Inspection Certificates on Order
N.B.F.U. Pamphlet No. 58, Latest Issue
Working Pressure:
Shell 250 PSIG & 250°F (Liquid and Vapor Sides)
Tubes 100 PSIG & 250°F (Steam and Condensate Sides)
Test Pressure:
Shell 500 PSIG Hydrostatic
Tubes 200 PSIG Hydrostatic
Shell Side Flange—M. & F. Joint Design
Outer Vaporizing Tube Holes are Double Serrated for insurance against leaks.

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DESIGNS MAY BE VARIED TO MEET SPECIAL JOB CONDITIONS



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THRU VAPORIZER SIZES F TO V INCL.



TYPICAL SECTION Z-Z
THRU VAPORIZER SIZES A, C, AND D



CAPACITY AND DIMENSION CHART

All dimensions in inches — Subject to change without notice

SIZE	CAPACITY Gals./Hr.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	APPROX. Wt./Lbs.
A-48E	110	4	.226	8	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	5	6	4	1	2 1/2	1 1/2		2	170
C-48E	220	5 1/4	.250	9 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	5 1/2	6	4	1	2 1/2	1 1/2		2	260
D-48E	315	6 1/4	.280	11	1 1/2	1 1/2	1 1/2	2	1 1/2	1 1/2	1 1/2	6	6	4	1	2 1/2	1 1/2		2	350
F-48E	430	8 1/4	.277	12	2	2	2 1/2	3/4	2	1 1/2							12 1/2	7 1/2	2 1/2	530
H-48E	900	10 1/4	.307	14 1/2	2	2	2 1/2	3/4	2	1 1/2							14 1/2	8 1/2	3 1/2	820
K-48E	1200	12 1/4	.330	16 1/2	3"	3"	3	1	2	2 1/2							16 1/2	9 1/2	3 1/2	1000
L-48E	1600	14	1/4	18 1/2	3"	3"	3	1	2	2 1/2							17 1/2	10	3 1/2	1300
N-48E	2100	16	1/4	20 1/2	3"	4"	4 1/2	1 1/2	2	2 1/2							19 1/2	11	5	1500
P-48E	2500	18	1/4	22 1/2	3"	4"	4 1/2	1 1/2	2	2 1/2							21 1/2	12	5	2100
R-48E	3600	20	3/4	24 1/2	4"	6"	4 1/2	1 1/2	2	4"							23 1/2	13	5	2600
T-48E	5000	22	3/4	27	4"	6"	4 1/2	2	2	4"							25 1/2	14	5	3200
V-48E	6000	24	3/4	29	4"	6"	4 1/2	2	2	4"							27 1/2	15	5	3800

*—Flanged Conn. 300 Lb. Design, Raised Face.
†—Flanged Conn. 150 Lb. Design, Raised Face.
All Other Connections are Couplings.

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MARCH, 1953

Some Problems in LPG Metering and Meter Proving

By N. E. Ziege and P. W. Tucker*

Phillips Petroleum Co., Bartlesville, Oklahoma



Paul W. Tucker



N. E. Ziege

WE would like for this presentation to be considered as an informal discussion of the distribution, sale and measurement of liquefied petroleum gas and their relationship to the various state weights and measures regulation of such sale and measurement. We would further like to point out why the problem of metering and meter proving is not a simple one and suggest a practical approach to the problem. And at the same time assure you of this industry's interest and cooperation in the matter of proper sale and measurement.

Distribution

L. P. gas is sold and distributed in many ways. These include:

(1) Cash and carry—usually in 20-pound "bottles." This is a "package" sale by weight.

(2) Delivered service—where L. P. gas

cylinders of 100-pound capacity are delivered to the homes to replace empty cylinders. This is normally a two-cylinder system. Again this is usually a package sale by weight.

(3) One-cylinder systems—usually ICC cylinders of 150- to 420-pounds L. P. gas capacity where the company owns the inventory of gas in the container and the sale is by gas volume or some equivalent unit based upon meter measurement.

(4) One-cylinder systems—where delivery is by weight. This is an older type service and is gradually being replaced. It involved an actual weighing of the cylinder before and after delivery of the gas.

(5) Bulk delivery—this method involves use of ASME tanks of 500- to 1000-gallon capacity. There are, however, quite a number of 250-gallon tanks and there is a growing tendency to install 1200-gallon tanks where both house heating and farm use (tractor motor fuel, etc.) loads are involved. The method of sale is usually by gallons as measured by the meter on the cargo truck tank but again some distributors prefer to own the inventory of gas in the container and sell by vapor meter (gas measurement).

It is to be noted then that the basic measuring units are the pound, gallon and cubic foot. However, in some places other units which are based upon some equivalent of one of these three basic units have been used. These other units were developed and used principally as an approach to competitive marketing practices. As long as such a unit is based on some definite equivalent of one of the three basic measuring units—the pound, gallon or cubic foot—and such equivalent is known to both the customers and the weights and measures officials it, too, becomes a sound unit of measurement, perfectly acceptable.

I have not mentioned the slip-tube rotary or magnetic type gauges because these devices are usually used solely to determine safe loading levels. These are occasionally used where a truck can "dump" (deliver) a whole load. Consequently, these are outside the scope of this paper which is concerned with the sale to Mrs. Housewife or Mr. Farmer and attendant problems.

Pertinent Properties of LPG

Usually any discussion concerning L. P. gas is prefaced with a detailed discussion of the properties and characteristics of the product. However, in this case, it is thought advisable to limit such discussion to those properties which specifically affect metering and meter proving. These include:

(1) Vapor pressure—commercial L. P. gas can have a vapor pressure as high as 215 psig at 100° F, though usually if it is propane it will be around 200 psig at 100° F. If it is butane then the vapor pressure will not exceed 75 psig at 100° F and

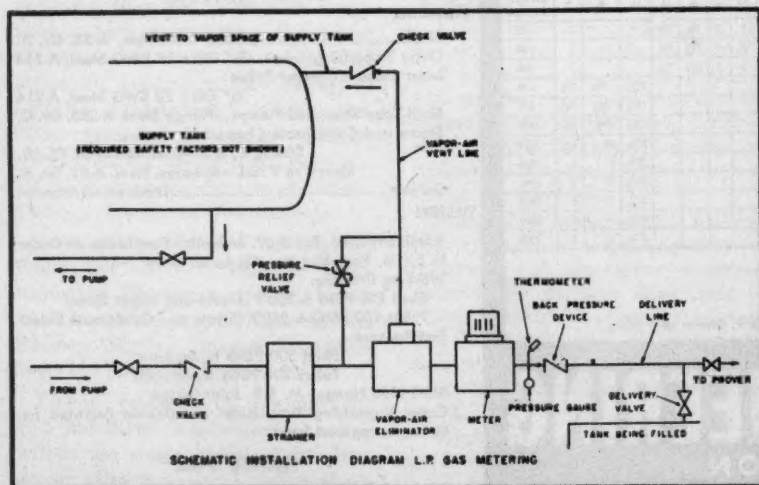


Fig. 1. Schematic installation diagram for L. P. gas metering.

*Presented at the Seventh Annual Conference of the Southern Weights and Measures Association at Topeka, Kan.

butane-propane "mixtures" can have vapor pressures anywhere in between. Vapor pressure, of course, is directly related to temperature and the hotter the liquid L. P. gas the higher the vapor pressure. It is not, however, a "high pressure" gas as it is often incorrectly called. High pressure gases include such gases as oxygen, hydrogen, carbon dioxide, helium, etc. This characteristic explains why L. P. gas has to be kept under a moderate pressure to maintain it in a liquid state. The significance of this in liquid meter is at once apparent because a liquid meter will measure the vapor just as though it were liquid. In other words, vapor must be eliminated because if vapor does pass through the meter it will be measured by the meter as liquid.

(2) Specific gravity—this important property can be defined as the ratio of the weight of a given volume of LPG to the same volume of water measured at some standard temperature—usually 60° F. Specific gravity in addition to its significance in characterizing and establishing a fundamental property of L. P. gas performs two other important functions:

(a) It is important in determining the safe loading densities for the transportation and storage of the fuel in closed vessels.

(b) Together with temperature and volume measurements it is used for determining the liquid volume at the standard temperature (60° F). It is this use of specific gravity that concerns us most in this discussion today.

(3) Low viscosity.

(4) Solvent action.

(5) Lack of lubricating quality.

These three characteristics are of principal concern to the meter manufacturer in the design and construction of the meter.

Metering

Of the various ways L. P. gas is currently being distributed we will, in this discussion, consider the method employing positive displacement meters, specifically the liquid meter. L. P. gas is also dispensed through vapor (gas) meters; however, this is another complete subject in itself.

Liquid L. P. gas meters have been developed from the existing fluid meters rather than by a distinct evolution solely for the measurement of LPG. The present gasoline or water meters served as good starting points for most present models, and by some redesign and adaptation have proved to meet most of the demands of the industry with respect to accuracy, general performance and durability.

It is not our intention to discuss design and construction details of L. P. gas liquid meters; in general, these differ from the ordinary fluid meters to the extent that they must handle working pressures up to 250 psi. Additionally, since the viscosity and

boiling point of L. P. gas are comparatively low, its lubricating qualities nil, and its inherent solvent properties, unique problems are presented for the producer of acceptable meter equipment. Corrosion from liquid L. P. gases is not a problem.

We find, therefore, that meters for LPG have stronger cases to handle the pressure, closer tolerances to prevent fluid slippage in the meter element, bearing materials which have acceptable "dry" running qualities, resilient materials that resist the solvent action of the product, and must incorporate means to prevent vapor formation in or ahead of the meter.

In the interest of accuracy it is imperative that vapors not be allowed to enter the meter which cannot distinguish between liquid and gas. Obviously, the registration of vapor will lead to gross over registration. This problem is almost always handled by maintaining several pounds of back pressure in excess of supply tank pressure on the meter outlet to condense all vapors and prevent their occurrence in the meter. This can be accomplished by a fixed back-pressure valve or preferably a differential back-pressure valve. The

latter automatically maintains several pounds pressure above that in the cargo or storage tank.

A schematic liquid metering diagram is shown in Fig. 1 and incorporates the elements just discussed, as well as other features required to complete a workable system. Line sizes are not shown; however, you are undoubtedly aware of the fact that pressure loss in the system up to the meter must be a minimum to prevent vapor formation and assure satisfactory pump and meter performance. We have a liquid return or by-pass line and vapor-air vent back to the supply tank, but this connects in ahead of the meter.

Meter Proving

Since liquid meters are subject to wear and variations in adjustment throughout their useful life, we should expect to find variations in their accuracies. Meters on mobile equipment also suffer road shocks and vibration. In view of this, several states have set up regulations and procedures within their weights and measures departments to prove meters dispensing L. P. gas domestically.



The L. P. gas meter proving unit of the Division of Weights and Measures, Kansas State Board of Agriculture, showing scale on which the tank is weighed, and a small motor-driven pump used to pump the L. P. gas back into the truck tank. With this unit are used a hydrometer, to take the specific gravity, and thermometers to report the temperature at the time the liquid enters the test tank. There is also a thermometer to be used at the meter when the meter is equipped with a thermometer well. Photograph through the courtesy of J. Fred True, Kansas State Sealer.

At present, equipment being used for meter proving is generally classified into two types: the gravimetric and the volumetric. Each has its proponents and there are some problems with each type as will be pointed out in more detail.

Gravimetric Prover

The gravimetric prover, as the name implies, weighs the fluid being checked through the meter. This is the only type of prover for butane and propane indicated in the ASME-API Petroleum P.D. Meter Code and is fully described therein. A gravimetric prover employs a pressure tank having an LPG capacity of about 50 to 60 gallons and mounted on a suitable weighing scale. There are other necessary accessories such as an L. P. gas pump with explosion-proof motor for evacuating the weigh tank, a device for determining the specific gravity of the product, a thermometer for obtaining liquid temperature in the prover tank, pressure gauges and necessary transfer hose. This equipment is usually mounted on a small trailer for transporting it rapidly to any spot where needed.

Although all factors involved in proving of L. P. gas meters are important, there are several more outstanding than others to consider if accurate results are to be obtained.

(1) The weigh tank must be large enough to allow a proving run without undue increase in tank pressure which would tend to progressively slow the pumping rate and thus the flow rate through the meter. Meter errors are seldom constant for various throughput rates.

(2) Accurate scales must be used.

(3) The scale and tank must be shielded from the effect of wind, rain, etc., since even light disturbances of this nature can cause weighing errors several times the magnitude of the minimum scale graduations.

(4) There must be an accurate product specific gravity determination.

(5) Accurate metering temperature readings are essential so that proper volume corrections can be applied to the gross meter throughput.

Items 1, 2 and 3 can be solved directly by design and physical arrangement. Item 4 poses a problem because of the frailty of the instrument presently available. We will discuss this problem in more detail.

The type of pressure hydrometer currently used for determination of the specific gravity of liquid L. P. gas

is the one approved by the NGAA. This consists of a weighted glass float and a thermometer within the transparent tube by which the gravity and temperature of determination can be established. This looks fine; however, the pressure exerted on the glass parts (and this pressure varies with the temperature) influences the accuracy of the instrument.

For example, if a hydrometer is calibrated to give a true reading at 60° F liquid temperature, its calibration changes with increasing or decreasing liquid temperature, which is directly related to the vapor pressure above the liquid. Pressure changes in the hydrometer chamber affect the buoyancy of the float and also the accuracy of the thermometer. If the calibration of the hydrometer would remain constant over the working range we could correctly apply temperature corrections to establish the product on a 60° F basis. An apparent solution to this is to determine the gravity at 60° F; however, this takes additional equipment in the form of a constant temperature bath and proper technique. This problem will be better appreciated by consideration of simple examples.

Assume for this example that the actual specific gravity of the product used in proving a meter is .510 at 60° F; however, the specific gravity determination is made at 70° F. Then assume that when we correct to 60° F, our specific gravity is apparently .512, an error of .002. Further, assume that 250 pounds of product are put through the meter according to the prover, where the temperature indicates 68° F. At the meter the temperature reads 64° F.

(a) What is the difference due to error in specific gravity reading?

$$\text{True Volume} = \frac{250}{.510 \times 8.33} = 58.85 \text{ gallons}$$

$$\text{Apparent Volume} = \frac{250}{.512 \times 8.33} = 58.62 \text{ gallons}$$

$$\text{Difference} = .23 \text{ gallons}$$

$$\text{Error} = \frac{.23 \times 100}{58.85} = .39\%$$

$$\text{or, directly; } \frac{(.512 - .510)}{.510} \times 100 = \frac{.002}{.510} \times 100 = .39\%$$

(b) What is the difference due to error in weighing the product in the prover? It seems probable that if the prover tank is weighed empty and again after filling, and the drag of the filler hose is not considered, an error of 1/2 pound is easily possible.

The difference is then .5 of a pound, or

$$\text{Error} = \frac{.5 \times 100}{250.5} = .20\%$$

(c) What is the difference due to an error in meter temperature reading?

An error of 2° F is not unlikely in commercial thermometers, especially dial types; therefore, in making the meter volume correction to 60° F we find:

Correction factor for 62° F..... .997

Correction factor for 64° F..... .994

..... .003

$$\text{Error} = \frac{.003 \times 100}{.994} = .30\%$$

You will note from above that the temperature entered into this proving problem twice—first, in the determination of the gravity of the product, and, secondly, in establishing the volume correction factor for the meter throughput on a 60° basis. Adding the most obvious errors gives a total of .9%. Errors may not always be additive; however, in the realm of general practice they can be. We have used minimum deviations in the example, and any small increases in the errors could easily put the total up to 1.5%. Discrepancies in technique and operator's lack of attention to details could lead to proving errors as great as 2%. It may require laboratory precision to stay within this figure when the overall problem is considered.

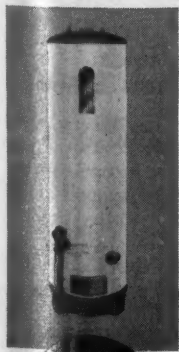
Volumetric Prover

A volumetric type of meter prover measures the volume put through to meter. The tank looks somewhat like an hourglass with a large lower chamber. In the cylindrical section connecting the upper and lower volume chambers is fixed a heavy gauge glass tube with a scale. Quite often this gauge glass tube is partially insulated to reduce heat transfer to the fluid in the tube and thereby reduce "boiling". The chamber attached to the top of cylindrical section serves as an accumulator chamber for vapor. A safety relief valve, a pressure gauge, and a pressure-return line connection are fitted into the top chamber. The meter delivery line is connected to an opening in the top surface of the large bottom chamber. The connection for emptying the lower chamber is at the very bottom. A thermometer for measuring the product temperature is located in a well in the lower chamber. A pump is used for emptying the prover.

In calibrating the volumetric prover it is necessary to take into account

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Rheem is ready to help you talk to her — and him — with the most complete promotional backing. There's everything you need for local advertising, to identify your store, to display the product, to **SELL**. Signs, mailing pieces, point of sale material, catalogues, newspaper ads, radio and TV scripts — these are all included in Rheem's giant promotion kit.

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MARCH, 1953

that the apparatus measures under vapor pressure from the product. Thus, it is not possible to calibrate under atmospheric conditions and assume that the calibration will be accurate for existing pressure conditions. Calibration of a volumetric prover needs to be done with great care or the apparatus will be worthless from this standpoint alone.

Use Vapor Return Line

In using the volumetric type of prover a vapor return line is often connected to the supply tank. One advantage of a vapor return hose is that the pump does not have to operate against increasing prover pressure and thereby change its pumping rate, which in turn effects the metering rate.

Although the volumetric prover seems to circumvent some of the problems involving the gravimetric type, it is our conclusion that larger errors can result with the volumetric type. One of the large factors is the great change in volume of L. P. gas with temperature change. Thus, if the product were pumped from a relatively warm tank to a cold prover the product would tend to shrink continually and before a reading could be taken we might be several per cent off. In addition to this, of course, is the matter of calibration of the prover. Some of these matters can be minimized by prover procedure; however, it is doubted that the accuracy would compare favorably with that of a properly manipulated gravimetric prover.

What is industry doing about these problems? The answer is "plenty". Industry from the producer to the distributor along with their respective associations, the Natural Gasoline Association of America (NGAA), the California Natural Gasoline Association (CNGA), the American Petroleum Institute (API), the American Society of Mechanical Engineers (ASME), the American Society for Testing Materials (ASTM) and the Liquefied Petroleum Gas Association (LPGA) have all contributed to the pool of knowledge in this field.

Only a year ago the NGAA and CNGA developed and adopted a revised and more convenient method for the determination of the L. P. gas vapor pressure. They are presently actively trying to find better ways of more accurately determining the

specific gravity. They have recently cooperated with the ASTM in arriving at a revised and enlarged volume correction factor table. The ASME-API have recently completed a tentative code for the installation, proving and operation of positive displacement meters in liquid hydrocarbon service—commonly referred to as "Petroleum P.D. Meter Code".

The industry actively supports practical legislation covering the units of measure of L. P. gas. The industry generally regards the law of Kansas as a model bill in this regard and several states have already "followed suit". The industry stands ready and willing to cooperate in this very important matter. At the present stage of development we cannot expect the measurement of L. P. gas to be as accurate as that of flammable liquid; however, a 2% tolerance is both attainable and reasonable.

Test Methods Help Keep Gas Appliances Safe

Gas and gas appliances essentially are a safe element in home life; nevertheless, the gas industry is taking the lead in reducing accident hazards to the absolute minimum, according to the American Gas Association.

This policy was stressed by C. George Segeler, utilization engineer of the AGA, at the recent National Conference on Home Accident Prevention at Ann Arbor, Mich. The conference was sponsored by the United States Public Health Service, the National Safety Council, American Public Health Association and the School of Public Health, University of Michigan. It was attended by more than 150 officials and representatives engaged in Federal, state and city public health activities. The conference was part of a planned program to attack home accidents.

To bring the proper scale of values to the discussion, Mr. Segeler pointed out that records of the American Gas Association show that there are 24 million utility gas domestic meters in the United States today. Based on the average size family, gas utility companies serve 91.2 million people. In addition there are about 8 million L. P. gas or bottled gas customers. Most families have more than one gas appliance, and many gas appliances have more than one gas burner. There is in total an astounding number of burning gas flames in operation every day.

Even with this tremendous total exposure, gas and gas appliances for

many years have been near the bottom of a list published annually by the National Fire Protection Association, reporting fire causes by frequency and amount of loss. In the 1951 list, the most recent report, gas and gas appliances stood 19th on a list of 25 causes.

No small part of the general safety which has been built into gas appliances can be attributed to the efforts of the American Gas Association Laboratories at Cleveland and Los Angeles. Here more than 95% of all domestic gas appliances are tested and approved under requirements that are adopted as American Standards. A set of these requirements covers each gas appliance. A typical standard is the domestic range standard, comprising a 50-page booklet with some 500 different requirements and tests which must be met to determine compliance by a gas range with American Standards.

Summaries published by the United Public Health Service show a decline in the fatal accidents due to utility gas. In the past eight years, this figure has declined from 62.9 accidental deaths per million meters to 45.7 accidental fatalities per million meters.

In its work to reduce accident hazards to an absolute minimum, the American Gas Association initiated a new code that has been adopted as a new American Standard for the Installation of Gas Piping and Gas Appliances in Buildings. The identical standard was adopted by the National Board of Fire Underwriters.

Though the code was completed only in 1950, the new standards have already been enacted into building codes in a large number of cities and states, including such states as New York. It also is being used in housing ordinances, as distinct from building codes, since it can be applied that way to existing situations.

Oregon Firm Holds Sales and Service School

Albany Propane Gas, Albany, Ore., was host at its store to 10 men in the gas and appliance business at the second of a series of schools sponsored by Western Utilities Supply Co., of Portland.

Carl Christensen, representing the Reznor Manufacturing Co., of Mercer, Pa., was the instructor. He demonstrated sales and service methods as applied to suspended gas unit heaters for commercial establishments.

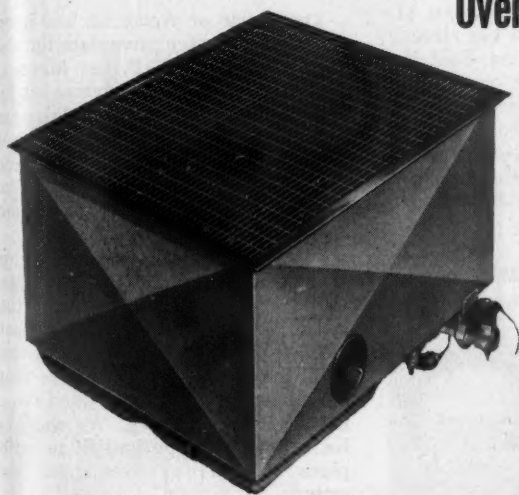
At the first school of the series the venting of gas appliances was discussed.

COLEMAN FLOOR FURNACES

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ONE EVERY 2 MINUTES!

Over 630,000 sold in the last 8 years!



LP-GAS. The popular Shalloflow Model extends 24½" or less beneath the floor. The Flat Register Model (above) lies flush with the floor. The Dual Wall Model (not shown) fits beneath wall or partition, heats two adjoining rooms at same time. These efficient heaters give complete warm air change 3 to 5 times an hour; heat 2 to 5 rooms. Models specially engineered for LP-Gas.

Coleman Floor Furnaces
picked for
huge housing
development!

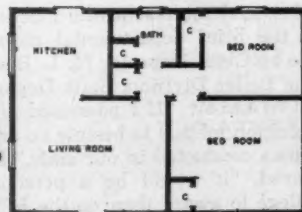


More than 500 Coleman Floor Furnaces have been installed by Carl T. Mitnick and Charles Wright, in their North Cape May (N. J.) Housing Development. The project, when completed, will comprise 1700 homes. "We can't talk enough about these Coleman furnaces," Mr. Mitnick says. "They heat perfectly in the coldest weather, and install easily. Owners are enthusiastic."

HERE'S statistical proof of Coleman's popularity with your customers . . . proof that when you handle Coleman Floor Furnaces, you have customer acceptance at the start.

Over 630,000 Coleman Floor Furnaces have been installed in the last eight years—that shows the powerful sales preference the Coleman product enjoys. Home owners like the big, generous warmth and evenly distributed comfort that Coleman engineering assures them. They like a Coleman because it's easily installed without big alterations—with no air ducts, no basement and no excavating needed. The ideal furnace for small-home comfort and health.

Get the rest of this heating equipment success story. You'll understand why Coleman is the coast-to-coast favorite. Mail the coupon today. The Coleman Company, Inc., Wichita, Kansas.



Comfort costs so little with a

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Please send me free information on Coleman Floor Furnaces.

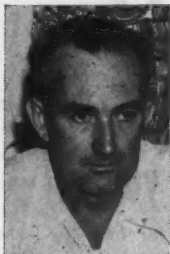
Name

Address

City State

Arkansas Dealers Praised For Fine Safety Record

THE seventh annual Mid-Year meeting of the Arkansas Butane Dealers Association, held in Little Rock, Jan. 18-19, found 225 people enjoying a well-rounded program of business and entertainment, presided over by President Robert L. Remy, of Booneville.



R. L. Remy

Among the speakers were Robert E. Borden, director of LP-Gas Information Service, Chicago, who described the magnitude of the national efforts to inform the public of the many services offered by butane-propane dealers. Henry C. Carlsen, executive sales director of the Minneapolis-Honeywell Co., followed with a description of the progress being made by appliance manufacturers to promote the use and sale of gas-fired products to the public.

"Salesmanship—A Lost Art," was the subject of an address made by George H. Nichols, sales manager for L. P. gas products, A. O. Smith Co., Houston. He touched largely on an analysis of sales problems which have developed during recent years in the industry, both from retail and wholesale levels, and steps which had been taken to correct weak links in overcoming buyer resistance.

Of special interest to the meeting was the brief departmental report made by Chief Inspector M. L. Blair of the Boiler Division, State Department of Labor. "If I possessed any recognition medals to bestow on any business conducted in our state," he declared, "it would be a personal privilege to award them to the LPG industry and you dealers in Arkansas for the wonderful record you have compiled in safety over a long period of years. I sincerely hope you will continue to support your organization and its efforts to bring proper education to you and your employees. In my own mind you have achieved something of great importance and I want to congratulate you on establishing a fine program. Please keep it up and we'll give you all possible assistance."

That should have been enough praise to satisfy Executive Secretary "Johnnie" Porter but another highlight was provided by George H. Wittenberg, Jr., general agent for Massachusetts Mutual Life Insurance Co., underwriters for the ABD Insurance Trust, covering life and hospital insurance for L. P. gas dealers and employees in Arkansas. This insurance trust totals more than \$1,500,000 in coverage and has already paid more than 31 claims. Said Mr. Wittenberg, "In all of our experience with group plans, none has brought our agency more genuine respect and prompt dealings than the one we enjoy with the Arkansas Butane Dealers Association Insurance Trust."

A special committee composed of Directors James S. Moseley, Jr., George DeLaughter, Earl Fitzgerald



A. W. Porter



M. L. Blair

and Associate Member Eugene E. Bishton unanimously endorsed a proposed "Special Motor Fuels Tax Law" which is the result of studies by a committee appointed by Governor Francis Cherry and headed by M. R. Springer, Little Rock. The proposed new bill requires all trucks using butane, propane, diesel oil, kerosene or distillate to carry a special fuels permit. It abolishes the 20-gallon tax exemption now in effect; authorizes special fuel dealers to collect fuel taxes and would classify vehicles using special fuels according to weight for mileage computation purposes.

"Our association," said President Remy, "has been trying to get a bill something like this through the legislature for the past three years. We're for it wholeheartedly."

On the entertainment side, one of the most successful events was the

coffee-coke hour given by Mrs. Robert L. Remy on the second morning of the meeting. The event attracted more than 80 women. On Sunday afternoon Mrs. C. R. White was hostess for a colorful tea at her home in Little Rock.

Other activities on the social side included a Friendship Hour on Sunday evening attended by more than 250 persons, among whom were dozens of members of the General Assembly, and a smorgasbord dinner and dance brought the meeting to a successful close on Monday night.

Arkansas Dealers Plan Spring Management Course

The week of April 12 has been selected as the tentative date for the second series of L. P. gas Management Institutes jointly sponsored by the Vocational Distributive Division of the Arkansas State Department of Education and the Arkansas Butane Dealers Association, according to Educational Committee Chairman Alex S. Hill, of Blytheville, Ark.

"At the moment we strongly favor the week of April 12th," said Mr. Hill, "largely because it fits into the schedule of University of Arkansas officials who will be associated with us in the project. Also, because that period comes within a so-called slack period of our industry. We want to fix a time we hope will fit in with plans of dealers throughout the state."

Although the Management Institute will closely follow the pattern of similar projects in Louisiana, Kansas and Georgia in recent years, ABDA proposes to inject some new ideas of permanent value to its member dealers and key employees.

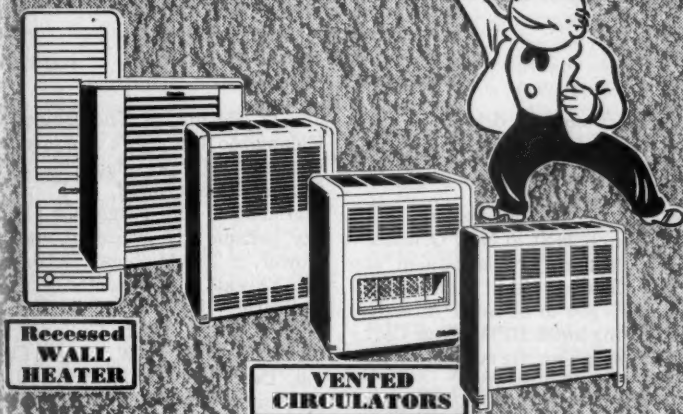
"The University of Arkansas is eager to help us tackle this job," declared J. C. Ruppert, director of the Vocational Education Division. "We also have learned that other groups are willing to lend us assistance and feel greatly encouraged in an undertaking of this kind."

According to Chief Instructor Harold Smock, the institute will be conducted in the Education building of the capital where facilities are ideal. Many types of film and slide projectors are available for presenting the audio-visual features. Proposed fees will be in line to suit the average dealer.

ABDA will prepare and release brochures and promotional material as soon as the permanent date has been set, and the association has been assured of complete cooperation among all L. P. gas and appliance suppliers.

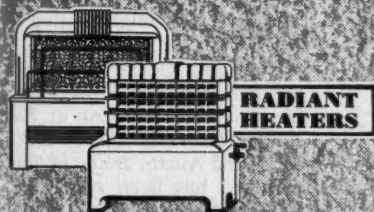
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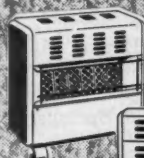


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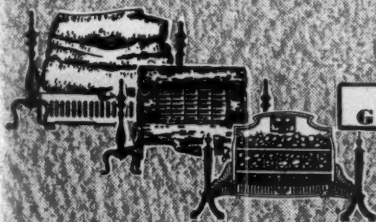
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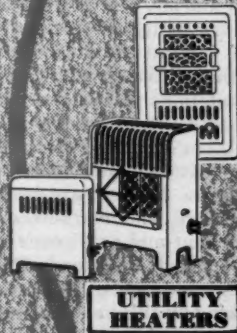


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EVERY NEED for modern, efficient heating . . . home, office, store, club, motel, etc. Range from 8,000 to 75,000 Btu. Quality built . . . budget priced . . . thrifewise on fuel. Safe and dependable . . . backed by over a century of engineering know how. Tested and approved . . . for all Gases. Excellent assortment of fresh, colorful Merchandising Helps furnished all franchised dealers.

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ASSOCIATION NEWS

California

The term "white goods" normally means household linen. But to George W. Requa of Sacramento, executive secretary of the Liquid Gas Dealers Association of California, the term "white goods" has a special meaning. That's what he calls the gleaming white L. P. gas ranges, water heaters, clothes dryers, refrigerators, and any other LPG kitchen and laundry equipment to be exhibited April 17-18 at the fourth annual get-together of the association.



Geo. W. Requa

Invitations to the annual meeting and trade show at the Alexandria hotel, Los Angeles, have been sent to all who attended the 1952 convention in Fresno. All L. P. gas dealers, manufacturers, and marketers of allied equipment and appliances are cordially invited to attend, Mr. Requa states, and adds, "The committee working on this year's plans promise a bigger and better program for all who attend."

Florida

The date for the next Florida LPG Association and Florida-Georgia Gas Association joint convention is April 16-18 at the Palm Beach Biltmore, Palm Beach, Fla.

Louisiana

J. C. (Slim) Chenevert, secretary of the Butane-Propane Institute of Louisiana, reports, "This year we are looking forward to a 100% member-

ship of the Louisiana dealers in our association and for the first time will try a three-day meeting instead of the usual two days."

The annual state convention will be held March 29-31 in New Orleans. Business sessions are scheduled at the St. Charles hotel, and room reservations are to be made directly with the Jung hotel. BPN Editor Carl Abell will speak on the subject "Who Is Responsible for Safety?"

The other institute officers are: president, R. W. Anderson, Anderson Butane Service, Delhi; vice president, Drozan Miller, Gas Appliance Co., Lake Charles; and treasurer, W. C. Bogan, Peoples Butane Gas Co., Denham Springs.

Michigan

Officers and directors for 1953 were elected at the Grand Rapids convention of Michigan LPGA Jan. 19-20.

Joe O. Reavis, of The Bingas Co., Kalamazoo, last year's vice president, was elected president, succeeding Clarence Habermehl, of Flint. Lou Marshall of The Petgas Co., Petow-sky, became vice president, and J. O. Gower, of The Michigan Bottled Gas Co., Eureka, was re-elected secretary-treasurer. The 1953 directors are: Glen Gorman, Purity Cylinder, Inc., Grand Rapids; F. W. Mayo, Flame-gas Detroit Corp., Detroit; James Davison, a retail dealer, Boyne City; John Bertoldi, Iron Mountain Gas Co., Iron Mountain; and Clarence Goodman, Goodman Bottled Gas Co., Gladstone.

Secretary Gower announces that arrangements have been completed for a summer meeting at Johnson's Rustic Resort, Houghton Lake, June 25-27, and Austin Jones, of The Kero-test Co., has been appointed chairman of the committee. Sales talks and service demonstrations will be



Officers of the Butane-Propane Institute of Louisiana (left to right): J. C. Chenevert, secretary, Central Louisiana Gas Corp., Pineville; R. W. Anderson, president, Anderson Butane Service, Delhi; Drozan Miller, vice-president, Gas Appliance Co., Lake Charles; W. A. Bogan, treasurer, Peoples Butane Gas Co., Denham Springs.

featured in addition to many sport activities.

Speakers at the two-day January convention included Pierre Vinet, director of sales promotion for the George D. Roper Corp.; J. W. Christensen, sales manager of the Hamilton Manufacturing Co.; and two representatives of the Detroit-Michigan Stove Co., Vice President Fred Keiser and Sales Manager Paul Inskip. Cal Wright gave a resume of association activities, and Dr. Francis Russell was the after-dinner speaker, on the topic "L. P. Gas as I See It."

Missouri

The executive committee of the Missouri LPGA has decided as a matter of policy to participate in all local and state fairs, as members believe that such participation results in highly beneficial publicity for the industry. Those selected to handle arrangements for the association's part in the annual Missouri State Fair at Sedalia were: Al Bauer, chairman, John Riley, A. C. Turner, Roy Bixler, F. P. Scheidt, and Crump Taylor.

The committee for the annual convention and trade show, to be held June 16-18 at the New Jefferson hotel in St. Louis, is headed by O. E. Mueller. W. A. Schuette and A. W. Scofield were appointed by President Melvin Hall to assist Mr. Mueller.

Having been given power to appoint six new directors by a membership vote, which also created five new association districts within the state, the president named George Campbell, of Shelbina, to new District No. 2, joining H. S. Ragan of Kahoka. Henry Wieckman, of the Skelgas Division of Skelly Oil Co., Kansas City, joins A. C. Turner, of Chilhowee, in representing District No. 3. New District No. 5 now has N. Richter, of Hutcheson & Co., Bolivar, joining Crump Taylor, of Appleton City.

New District No. 8 has two new directors, G. R. Rayfield, of Raygas Distributing Co., Ellington, and Dale Nett of Missouri Propane Co., Cape Girardeau. The new director in District No. 9 is C. P. Lowry, of Semo Gas Co., Malden, who joins J. C. Edmonston, of Hornersville.

Districts 1, 4, 6, and 7 were already represented by two directors each, namely W. W. Beckett, of Cameron, and Harry Cole, of Chillicothe, in District No. 1; K. H. Dickson, of Moberly, and John Miller, of Vandalia, in No. 4; E. O. Reutner and J. A. Felder, both of St. Louis, in No. 6; and Monte Taylor, of Joplin, and A. D. Bradley, of Monett, in No. 7.

According to association secretary D. M. (Buck) Orcutt, the present number of 151 principal L. P. gas dealers and distributors in the state of Missouri is expected to be augmented soon, as the state has been receiving many applications from dealers who wish to handle LPG as a motor fuel.

New York

At an annual meeting in Syracuse, N. Y., on its first anniversary, the New York state LPGA appointed as its executive secretary William H. Plank, who is also the new East Central District secretary of the national LPGA. This district comprises the states of New York, Pennsylvania, New Jersey, Maryland, Delaware, Virginia and West Virginia. Mr. Plank, whose office is in Harrisburg, Pa., was, previous to his new appointments, chairman of the Pennsylvania state and national membership committees.

Directors elected, and the districts which they represent, are as follows: District 1, John Scozzafava, Port Henry; 2, Lou Cohen, Glogas Corp.; 3, L. W. Ferris, Household Gas Service, Clinton, the association president; 4, Ralph Liporace; 5, Harry Smith, Mid-Hudson Bottled Gas, Poughkeepsie; 6, Morris Gold, Langer Gas, Woodridge; 7, Marcy Coyle, Atlantic States Gas Co., Cortland, the vice president; 8, Wilbur Chapman, Chapman Gas Co., Manlius; 9, Charles Scott, Cuba Cylinders Co.; 10, Dale MacPike, Jr., Palmyra; 11, George Hauser, Wrights Corners; 12, Lou Seley, Conservative Gas Co., New Hyde Park, Long Island; 13, Ralph Fiske, Fiske Gas Co., Cobleskill.

Three directors elected at large are Gordon Beerbrauer, of Suburban Propane Gas Co.; Jack Neumann, of

Trageser Copper Works, Inc., Masspeth, Long Island, who is secretary-treasurer; and Roy R. Johnson, Fuelane Corp., Liberty, who was the program chairman.

President Lou Ferris announced that serious consideration was being given to the question of setting up several LPG filling stations in New York to serve trucks and other LPG-powered vehicles passing through the state.

The program featured a gas-versus-electricity demonstration by Frank Henke and Bill Johnson, both of Harper-Wyman Co., Chicago. A panel discussion of the four subjects, "L. P. Gas, a Motor Fuel", "Insurance for Our Industry", "Extension of Natural Gas Lines," and "State Building Construction Code," was followed by open forum with audience participation, and a question-and-answer session.

Missouri Service School Set for March 16-18

In conjunction with the Rolla (Mo.) School of Mines and Metallurgy, the Missouri LPGA is sponsoring a school for L. P. gas servicemen March 16-18. Although replies to a questionnaire circulated by the association indicated that as many as 178 servicemen and dealers wanted to attend such a course, it was decided to limit enrollment to two classes of 50 each.

The tentative list of subjects includes gas appliance venting; L. P. gas controls; L. P. gas burner adjustments; proper equipment installation; safety; regulator and line capacities; properties of L. P. gas; preventive maintenance of trucks; plant operation; proper tools and their care; customer relations; Servel service; L. P. gas brooding; and L. P. gas carburetion.



Directors of the New York State LPGA.

Texas Dealers Hold Mid-Winter Meeting

THE second annual Mid-Winter membership meeting of the Texas Butane Dealers Association was held at Mineral Wells, Texas, on Jan. 28, with 232 members in attendance, according to Wm. J. Lawson, executive secretary of the association.

J. H. Winton, president, presided at the single day session which followed a group breakfast, and the meeting got under way with a detailed report by A. A. Pickens, directing co-chairman of the TBDA Adequate Storage program, who reviewed in detail the progress of the past year. The second speaker of the morning was Raymond Hulsey, of Austin, prominent insurance executive, who discussed the increasing cost of workmen's compensation and public liability premiums.

Speakers for the afternoon included Prof. R. E. Jackson of Texas State Teachers College, and Frank Bolton, Jr., attorney for the Magnolia Petroleum Co., who presented facts and figures on increasing insurance costs and the rising tide of accidents. Mr. Bolton suggested efforts toward revising the state laws and other re-



Wm. J. Lawson

forms which might be undertaken to keep accident cases out of court.

Another afternoon speaker was James E. Taylor, former State Senator from Austin, now directing head of the Texas Motor Transportation Association, who reviewed proposed legislation which would touch the liquefied petroleum gas industry and urged TBDA members to maintain unending vigilance if they wish to avoid the enactment of laws unfair to the industry.

Tank Fabricators Re-Elect Officers

JAN. 23-24 marked the date for the first annual meeting of the Liquefied Petroleum Gas Tank Fabricators Association, Inc., held at New Orleans.

President M. G. Purpus reviewed the activities of the association since its inception in Memphis in October of 1952, and discussed the objectives of the organization. He told of the many inquiries which had been received from firms identified with the tank fabricating business concerning associate memberships in the association. Although associate members would be non-voting, Mr. Purpus recommended that these members, upon invitation of the Technical and Standards Committee, or other committees of the association, could have their representatives attend committee meetings and thus promote a close working relationship between



M. G. Purpus



W. H. Brooks

the association and firms whose activities and products are identified with the industry in general.

A complete report of association activities was presented by William H. Brooks, executive director, who heads the association offices in Washington, D. C. Mr. Brooks stressed the importance of working closely with government agencies and cited many instances by which association members had benefited through the establishment of the Washington office.

Other speakers included T. G. Tackett, of the National Butane Gas Co., Memphis, who discussed the engineering standardization program of L. P. gas and anhydrous ammonia tanks, and Joseph S. Whittington, manager of agricultural chemical sales, Mathieson Chemical Co., Baltimore, who presented an interesting story of the revolutionary growth in chemistry during the past 50 years.

An address by Charles H. Boylan, of The Weatherhead Co., Cleveland, who is chairman of the Standardization and Standards Committee of the Agricultural Ammonia Institute, pointed out the tests which have been conducted for the purpose of adopting a code for tanks which are to be used in the anhydrous ammonia fertilizer industry. In addition to pressure standards, above-ground tanks and uniform arrangement for fittings are to be recommended to equipment manufacturers by the committee, according to Mr. Boylan.

Praise for an outstanding job in organizing the association and getting it on a sound foundation was given the officers and board of directors by W. M. Wattman, chairman of the nominating committee.

Following his recommendation, the membership re-elected the following officers and board of directors: M. G. Purpus (Black, Sivalls & Bryson, Inc., Kansas City, Mo.), president; B. R. Sprayberry (Texas Boiler & Machinery Co., Dallas, Tex.), vice president; A. J. Hall (Burnham Corp., Irvington, N. Y.), secretary-treasurer. Directors: R. A. Gasal



Directors of the Texas Butane Dealers Association met at Mineral Wells, Texas, on Jan. 27, preceding the organization's second annual Mid-Winter membership meeting. At end of the table, left, are W. J. Lawson, executive secretary, and J. H. Winton, president.

(Butler Manufacturing Co., Kansas City, Mo.), S. W. Greene (Bagwell Steel Co., Bessemer, Ala.), Frank W. Row (A. O. Smith Corp., Houston, Tex.), and T. G. Tackett (National Butane Gas Co., Inc., Memphis, Tenn.).

Southeastern District LPGA

Featuring a three-day speaking program on pertinent industry subjects, a 14,000-square-foot display of the latest appliances and equipment, a dance, banquet and variety show, the annual Southeastern District convention and trade exhibit of the Liquefied Petroleum Gas Association will be held March 23-25 in Atlanta, Ga. It will be staged in the Atlanta Biltmore hotel.



Tom Fields

At the Monday afternoon session, Max Fetty, advertising and promotion manager, Delta Tank Manufacturing Co., Baton Rouge, La., will give a presentation billed as "Advertise — A Plan Today for Tomorrow's Sales."

Tuesday speakers will include L. R. (Bill) Chandler, sales and promotion manager, Gas Oil Products of Florida, Inc., Coral Gables, Fla., who will discuss "Beating Electricity with the Big A," and S. L. Stapleton, general manager, Consolidated Gas Co., Atlanta, whose subject will be "There's a Salesman in Your Future."

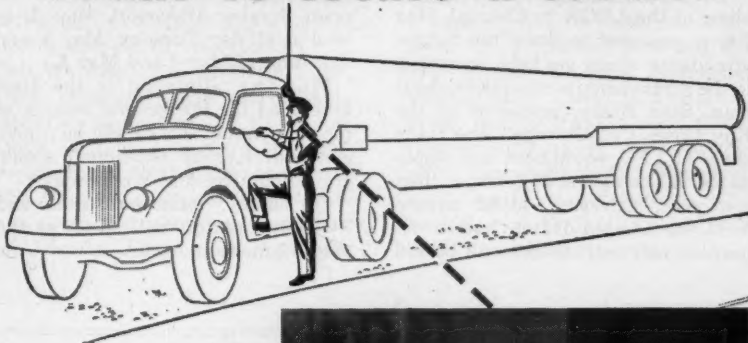
Annual meetings of the various participating state LPG associations are scheduled for Wednesday morning. In the afternoon, L. L. Waters, professor of transportation and business history, University of Indiana, Bloomington, Ind., will present a survey and forecast of the industry. Also, there will be speakers from outside the industry.

A dance and floor show advertised as the "Southeastern Jamboree" will be offered Tuesday evening. The convention will close with a banquet and variety show on Wednesday.

The trade exhibit will be the largest display of L. P. gas appliances and equipment ever held in the Southeast.

T. G. Fields is secretary of LPGA's Southeastern District, and is in charge of program arrangements.

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RCA 2-Way Radio puts you in constant contact with your drivers—lets you locate them and talk to them any time, anywhere—for more deliveries and greater profits from every trip.

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Ask your RCA representative to tell you how LPG organizations in other states have achieved substantial economies and extended coverage by forming statewide radio systems. He can help you take the first steps toward forming your own organization.

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Stan Beske Announces 1953 LPG Convention Plans

The 1953 convention and trade show of the LPGA in Chicago, May 3-6, is expected to draw the largest attendance of any yet held, according to the arrangements committee chairman, Stan Beske, president of the Kay Gases Co., Chicago. The trade show of LPG equipment and appliances will be almost 20% larger than last year. Covering 40,000 square feet—the Conrad Hilton hotel's exposition hall and annex—will be 196

display booths, 29 more than at last year's show. To enable the expected thousands in attendance to visit all the exhibits, the exposition will be open Sunday afternoon, May 3, as well as all day Tuesday, May 5, and mornings of May 4 and May 6.

Monday afternoon is the time scheduled for the general session of the convention. There will be luncheon addresses by prominent speakers on Monday and Wednesday.

Cal Tinney, "homespun" radio and TV commentator, will speak at the May 6 luncheon.



Stan Beske



Mrs. Stan Beske

Wednesday afternoon will be devoted to sectional meetings. The chairman of the Marketers section, I. W. (Pat) Patterson, of the General Gas Corp., Baton Rouge, La., announces that his section's program will include a panel under the title, "L. P. Gas Loads that Are Overlooked," at which dealers who have successfully promoted specialized farm, commercial, and industrial uses of LPG will tell how they did it.

The Appliance Manufacturers, Equipment Manufacturers, and Tank Fabricators sections will have a joint speaking program and then break up into round-table discussions on a sectional basis. Separate sessions have been scheduled by the Producers, Utilities, and International sections.

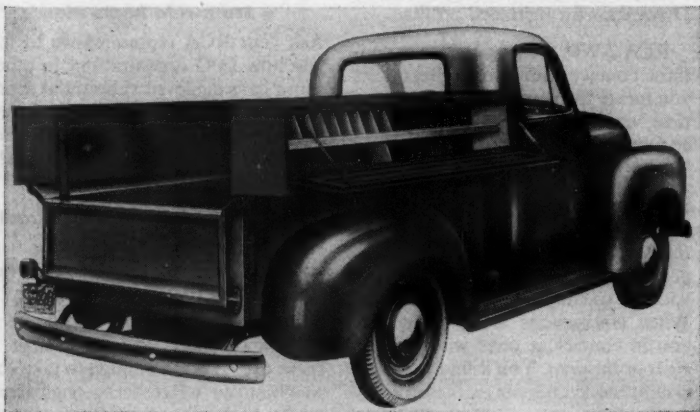
As in past years, the curtain will be rung down on the convention Wednesday evening at the annual banquet by "Gas-Flame Gaieties," which the LPGA secretary, Robert E. Borden, describes as "a fast-moving, hilarious vaudeville show."

A program of special activities for the ladies is being arranged by a committee headed by Mrs. Stan Beske.

Assisting Mr. Beske on the general arrangements committee are W. A. Baden, Anchor Petroleum Co., Tulsa; C. J. Bender, Trinity Steel Co., Dallas; Norman Brown, Bottled Gas, Ltd., Vancouver, B. C., Canada; C. L. Burrows, Coleman Co., Wichita, Kan.; W. H. Christopherson, Spencer Bottle Gas Co., Spencer, Iowa; L. E. Clancy, Detroit-Michigan Stove Co., Detroit; C. B. Dushane, Jr., American Meter Co., Philadelphia, Pa.; A. C. Fink, A. C. Fink, S. A., Mexico City, Mexico; F. C. Griggs, Jack Griggs, Inc., Exeter, Calif.; J. L. Grigsby, Sr., American Butane & Propane Gas Co., Oklahoma City; F. L. Malan, Central Bottled Gas Co., Salem, Ill.; W. J. Malchiodi, Protane Corp., Erie, Pa.; Richard C. Martin, Butane Gas & Appliance Co., Albuquerque, N. M.; Paul W. Ogle, Southern Indiana Liquefied Gas Co., Jeffersonville, Ind.; W. A. Shafer, Suburban Propane Gas Co., Seattle; and Robert J. Sweezy, Frontenac Blue Flame, Ltd., Kingston, Ont.

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Hal Halihan Is New Field Man On Promotion Staff

Hal Halihan, former major league outfielder, who since his retirement from baseball has engaged in promotional work in Chicago, Los Angeles, and Peoria, Ill., has joined the staff of the National Committee for LP-Gas Promotion, Chicago, as a special representative, Lee A. Brand, chairman, has announced.



Hal Halihan

He will spend most of his time in the field acquainting marketers and producers of liquefied petroleum gas and manufacturers of appliances and equipment with the services of the national and promotional program. This industry-wide venture, co-sponsored by the Liquefied Petroleum Gas Association, the Natural Gasoline Association of America and Gas Appliance Manufacturers Association, includes sizable advertising, publicity, employee training and other promotional activities.

New Promotion Committee Named By Lee Brand

Addition of a new member of the National Committee for LP-Gas Promotion and the make-up of its various subcommittees for the coming year are announced by Lee A. Brand, Empire Stove Co., Belleville, Ill., chairman of the group.

Named to the committee was Robert A. Johnson, Rockwell Manufacturing Co., Atlanta, Ga. He is a representative of the Liquefied Petroleum Gas Association, one of three trade organizations co-sponsoring the National LP-Gas Promotional program. The other associations are the Gas Appliance Manufacturers Association and Natural Gasoline Association of America.

Committee Chairmen

Mr. Brand announced the reappointment of E. Carl Sorby, Geo. D. Roper Corp., Rockford, Ill., as chairman of the Copy Subcommittee; Lee E. Clancy, Detroit-Michigan Stove Co., Detroit, Mich., as chairman of the Employee Training Subcommittee, and A. H. Cote, Suburban Propane Gas Corp., Whippany, N. J., as chairman of the Competitive Fuels Subcommittee.

He also named the following chair-

men of the fund-raising subcommittees: Peter A. Anderson, Utilities Distributors, Inc., Portland, Me., marketers; A. B. Cameron, Ruud Manufacturing Co., Pittsburgh, Pa., water heater manufacturers; Howard E. Felt, Warren Petroleum Corp., Tulsa, Okla., producers; Lyle Harvey, Affiliated Gas Equipment, Inc., Cleveland, Ohio, heating equipment manufacturers; Frank Henke, Harper-Wyman Co., Chicago, suppliers to appliance and equipment manufacturers; Chas. W. Johnson, Johnson Gas Appliance

Co., Cedar Rapids, Iowa, manufacturers of miscellaneous gas-consuming appliances and equipment; Herman Merker, Pressed Steel Tank Co., Milwaukee, Wis., cylinder manufacturers; E. L. Mills, The Bastian-Blessing Co., Chicago, equipment manufacturers; David K. Patterson, Servel, Inc., Evansville, Ind., refrigerator manufacturers; A. B. Ritzenthaler, Tappan Stove Co., Mansfield, Ohio, range manufacturers; and Frank Row, A. O. Smith Corp., Houston, Tex., tank manufacturers.

New TRIGGER VALVE adds more sell to fast-moving RANSOME TORCHES



Press this RANSOME trigger and watch sales shoot up. Improved T-1 trigger valve has built-in pilot light. Once flame is adjusted, operation is fully automatic. To light up, operator simply squeezes trigger; flame is snuffed when he releases grip. No awkward jet of fire when work is interrupted...no delay in relighting. Built of heavy bar stock; available for all RANSOME torches.

Ideal for such on-and-off work as

- Singeing hogs, chickens
- Plumbing, roof repair jobs
- Linoleum bending
- Paint burning
- Electrical soldering
- Small-scale preheating

T-1 adds more sell to a line already rich in selling points. No time lost pouring fuel, pumping, priming or pre-heating light, well balanced RANSOME torches. Their stable flames won't blow out even in a high wind. And safe, clean, instant-acting LP-gas brings repeat business...most of it for small containers that gross 1/2 to 1/3 more than bulk prices.

Trigger's natural palm grip, shown here on RANSOME Model RHT-T, is easily positioned at top, bottom or side of torch.

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Write for price list, discounts and 20-page catalog NOW.

24,

Ransome

What's Ahead for Gas Appliances?

NINETEEN fifty-three shapes up as the year in which tens of thousands of American homes will begin adopting the entire gas appliance "family."

The new year will intensify the trend started in 1952 toward the use of gas appliances for a greater variety of household functions.

This trend, of course, began in the construction of new housing—both

public and private. Now it is spreading into the booming field of home remodelling.

This—in combination with the expansion of natural gas service and effective promotion by all branches of the industry—made it possible by the year's end for most gas appliance manufacturers not only to recover from the dismal beginnings of 1952, but also to make important gains

By James F. Donnelly*
Vice President in Charge of Sales,
Servel, Inc., and President,
Gas Appliance Manufacturers Association

against competitive appliances and equipment.

The stepped-up sales pace of late 1952 seems certain to carry over well into 1953—and possibly through the entire year. Current circumstances and the outlook for the future are far brighter than they were a year ago when sales curves were sagging. Then, only the most optimistic anticipated anything but a continuing slump.

There are other good, solid reasons for optimism in 1953.

Low-rent public housing projects, for example, are certain to absorb thousands of gas appliances of all types. A recent GAMA survey of already approved projects shows that 69% of them will be heated by gas, 72% will have gas water heaters, and 83% will use gas for cooking. Many will also provide gas refrigerators, gas clothes dryers and gas incinerators. Expenditures for construction of these projects will exceed half a billion dollars, with a substantial part to be spent for gas appliances.

950,000 New Homes

In the private home-building field it is estimated that 950,000 new homes will be started during the year. When it is realized that seven out of 10 new homes will be heated with gas where the fuel is available, the potential for house heating equipment, and other gas appliances as well, is tremendous. A happy sign here is the increasing construction of "all-gas" homes.

An estimate of the total to be expended by American homeowners on remodelling during the coming year is hard to determine. However, it is true that 20,000,000 of our 42,000,000 dwelling units are more than 30 years old. Newspapers and magazines are devoting a great amount of space to stories about the obsolescence of many homes and their appliances. There is an increase in promotional

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Check this partial list of contents.

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BUTANE-PROPANE News

198 So. Alvarado Street
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*A paper delivered before Gas Appliance Manufacturers Association.

effort by all kinds of businesses which have services, materials or equipment to sell for remodelling operations. These publicity and promotional drives will help spotlight obsolescence and the need for the homeowner to do something about it.

There is ample money available for home modernization. Individual savings are at a record high. Mortgage indebtedness and personal loans have declined. With the need so great and the necessary funds at hand, gas appliance manufacturers can be sure of a chunk of the business if they will go after it aggressively.

Expenditures for maintenance and rehabilitation have lagged far behind the spending rate for new home construction. Dollar volume during recent years for new residential construction has been running at about four times the pre-war level. During these same years, remodelling and modernization expenditures have averaged only about 2½ times the pre-war rate.

Another important consideration in calculating the sales opportunity in home modernization is growing popularity of the open-end mortgage which permits long-term financing of new appliances and property improvements.

Taken all together, these items add up to a terrific sales opportunity for the gas industry—retailers and manufacturers alike. And, I believe, both are in a better position now than ever before to take advantage of the possibilities.

Home Heating

In spite of some materials shortages and supply restrictions in certain areas, makers of gas house heating equipment were able to achieve during 1952 substantial sales increases over the previous year. Gas-fired boilers were up from 60,500 units in 1951 to nearly 70,000 in 1952. Furnaces jumped from 390,000 to 450,000, and gas conversion burners went from the 1951 figure of 164,000 units to 220,000. Since the most spectacular gains were registered during the latter part of the year in a trend that seems sure to last well into 1953, prospects for further increases are very good.

Water Heaters

Like most other appliances, gas water heater sales slumped during the first half of 1952, at which point



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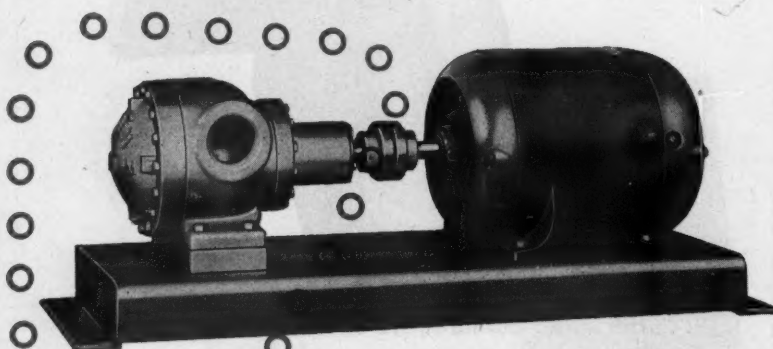
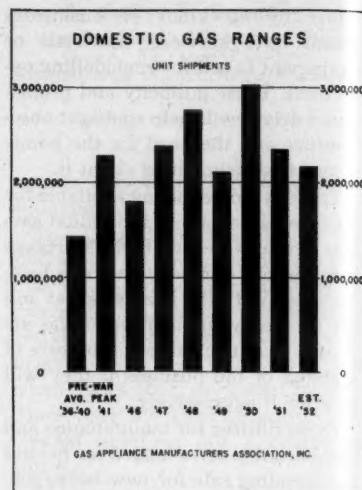
ZONE _____

STATE _____

they were 21% below the same period of 1951. However, a third quarter spurt which went 33% over the comparable figures for 1951, and continued strength during the last three months enabled the industry to finish the year about even with the 1951 total, 1,938,000 units. A change in FHA specifications supplanting a 20-gallon minimum tank capacity by a 30-gallon requirement, plus consumer education should enable the gas water industry to increase the proportionate sales of larger capacity equipment.

Ranges

Range sales moved up satisfactorily during the latter part of 1952, but could not compensate for the fact that the first six months showed a minus percentage of 22.0 compared to the first half of 1951. However, the strength of demand at the year's end indicates continuing improvement in the picture. Range sales should benefit greatly from the industrywide promotion program planned by members of the GAMA Domestic Gas Range Division, and from industry efforts



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to take advantage of the obsolescence and remodelling theme.

Clothes Dryers

Gas clothes dryers seem certain to hit an all-time high in 1953. This comparatively new member of the gas appliance family has no problems of saturation. The problem so far has been one of producing enough to meet the demand. With a number of manufacturers adding dryers to their lines for the first time this year, with others stepping up their production capacities, and again, with prospects brighter for adequate metal supplies, dryer sales should easily pass all previous totals.

Incinerators

The incinerator, like the clothes dryer, is relatively a newcomer in the industry. It, too, has a vast potential market in which it is just beginning to make a dent. Limited metal supplies and production facilities have posed a problem in the past but the problem may be solved this year. The increasing use of gas incinerators seems likely to stimulate demand in many areas where gas incinerators have not previously been in popular use.

Refrigerators

Refrigerators recovered spectacularly during the latter part of 1952 following an equally spectacular slump in the first six months. In 1953, starting at an accelerated sales pace, and offering the dramatically new and different "ice-maker," Servel anticipates its biggest sales year—and is backing this belief with the biggest

advertising and promotion expenditure in its history. The new automatic feature plus the company's drive will undoubtedly inspire unprecedented selling efforts.

Commercial Equipment

Prospects of increased metal supplies promise great benefits to manufacturers of hotel, restaurant and commercial gas equipment because of their production of durable, heavy duty equipment. From a selling point of view, there is a decidedly favorable tinge because of modernization activity in institutions and public eating places.

Industrial Equipment

During recent years the use of gas as an industrial fuel has increased far more rapidly than that of any other fuel. Now, the industry expects even more dramatic expansion because of the growing understanding that gas is not only a fuel, but also a precision tool. Intensive promotion of the new and varied uses of gas in industry by the makers of this equipment will firmly establish gas as the No. 1 fuel for industrial heat applications.

As the rest of the industry goes, so goes the sales volume of manufacturers of meters, valves, regulators, controls and accessories, since their products are used in conjunction with gas appliance and equipment production and installation. In the past few years material shortages have hampered production, and in some cases delayed installation of domestic, commercial and industrial gas equipment. With the materials situation eased, the manufacturers of meters, valves, controls and accessories will be in a better position to serve the rest of the industry and to share proportionately in its progress and prosperity.

Bright Picture Ahead

To sum up our situation—the gas appliance picture is far, far brighter than it was a year ago. There are hard facts on which to base forecasts of better business for 1953. The industry moves into the new year at a faster sales pace, without overwhelming inventories, with some relief from materials headaches and the promise of full relief to come. There's business to be done—and I'm sure the industry will go out and do it.



These popular extra-handy **RIDGID** drop head dies give you clean threads fast and easily

- ★ Small, well balanced, clean cutting, these popular **RIDGID** ratchet threaders are a pleasure to work with. They save you time and effort because heads snap into drive ring from either side, won't fall out. Precision-cut alloy dies reverse for close-to-wall threads—no special dies needed.
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CALENDAR

All associations are invited to send in dates of their forthcoming meetings for this calendar.

1953

MARCH

March 16-18—Missouri LP Gas Assn. Servicemen's School, Rolla School of Mines and Metallurgy, Rolla, Mo.

March 23-24—LPGA Board of Directors, The Dinkler-Ansley, Atlanta, Ga.

March 23-25—Southeastern District Convention. Biltmore hotel, Atlanta, Ga.

March 29-31—Butane-Propane Institute of Louisiana. Annual State Convention. St. Charles hotel, New Orleans, La. Room reservations at Jung hotel.

March 30-31—Indiana L. P. Gas Association. Convention and Trade Show. Claypool hotel, Indianapolis.

APRIL

April 1-2—Illinois LPGA. Spring convention. St. Nicholas hotel, Springfield.

April 6-7—Montana LPGA. Annual meeting. Northern hotel, Billings.

April 13-14—Assn. of Nebraska LPG Dealers. Annual Convention. Fontenelle hotel, Omaha.

April 15-17—Midwest L. P. gas service School. Iowa State College, Ames, Iowa.

April 16-18—Florida L. P. Gas Assn. Annual meeting. Biltmore hotel, Palm Beach.

April 17-18—Liquid Gas Dealers Assn. of California. Annual meeting and trade show. Alexandria hotel, Los Angeles.

April 19-21—Mississippi L. P. Gas Dealers Assn. Annual convention. Edgewater Gulf hotel, Edgewater Park, Miss.

April 29-30-May 1—NGAA Annual Convention. Rice hotel, Houston, Texas.

MAY

May 3-6—National LPGA convention and trade show. Conrad Hilton hotel, Chicago.

May 20-22—Gas Appliance Manufacturers Assn. Annual Meeting. The Greenbriar, White Sulphur Springs, W. Va.

May 24-30—Southern LPGA Service School. Louisiana State university, Baton Rouge.

JUNE

June 8-9—Utah LPGA, Salt Lake City.

June 8-9—South Dakota Liquefied Petroleum Gas Assn. Alexander Johnson hotel, Rapid City.

June 16-18—Missouri L. P. Gas Assn. Annual convention and trade show. New Jefferson hotel, St. Louis, Mo.

June 22-23—Wyoming LPGA, Annual meeting, Townsend hotel, Casper.

June 24-26—Texas Butane Dealers Assn. Annual convention and trade show. Baker and Adolphus hotels, Dallas.

June 25-27—Michigan LPGA. Summer meeting. Johnson's Rustic Resort, Houghton Lake.

JULY

July 19-21—Tennessee LPGA, Andrew Jackson hotel, Nashville

July 26-28—Kentucky LPGA. Annual convention. Seelbach hotel, Louisville.

AUGUST

Aug. 31-Sept. 2—Alabama L. P. Gas Dealers Association. Montgomery.

SEPTEMBER

Sept. 9-12—5th Eastern Gas Service School. University of Bridgeport, Bridgeport, Conn.

Sept. 14-17—Texas Butane Dealers Assn. Management Institute Training Program. Lubbock.

Sept. 14-23—International Petroleum Exposition. Tulsa, Okla.

Fisher Governor Issues New Publication

"The LP-Governor," an attractive and interesting dealer service publication, was launched last month by



K. R. D. Wolfe

the Fisher Governor Co., Marshalltown, Iowa. Appearing bi-monthly, the magazine is dedicated to the service of all members of the liquefied petroleum gas industry by bringing them new technical developments, new safety ideas, new service plans, new equipment and other pertinent facts, as well as performing a public relations job for the Fisher Governor Co.

K. R. D. Wolfe, vice president, Special Controls Division, who inspired the new magazine, invites suggestions, news items and photographs from industry members.

If you would like to receive this new publication address request to "The LP-Governor" editor, Fisher Governor Co., Marshalltown, Iowa.

Home Economist Available For Kentucky Dealers

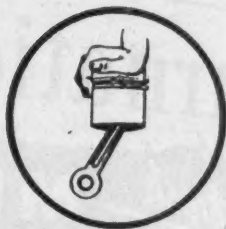
The Kentucky LPGA has arranged to make the services of a qualified home economist available to members desiring to hold L. P. gas cooking schools, according to Melvin E. Gayer, president. Members may make arrangements to hire this expert through the office of the secretary, Miss Frances L. Holliday, Burnside, Ky.

Mrs. Jean Cunningham, formerly home economist with the Cincinnati Gas and Electric Co., and a graduate of the Ohio State university, is available for these assignments. She is schooled in the advantages of bottled and tank gas, and has in the past held many cooking schools for dealers in northern Kentucky and Ohio.

Arthur C. Olsen Missing In Action In Korea

Lt. Arthur C. Olsen, former Arkansas Butane Dealers Association vice president, was reported missing in action over Korea while on a bombing mission for the Air Force.

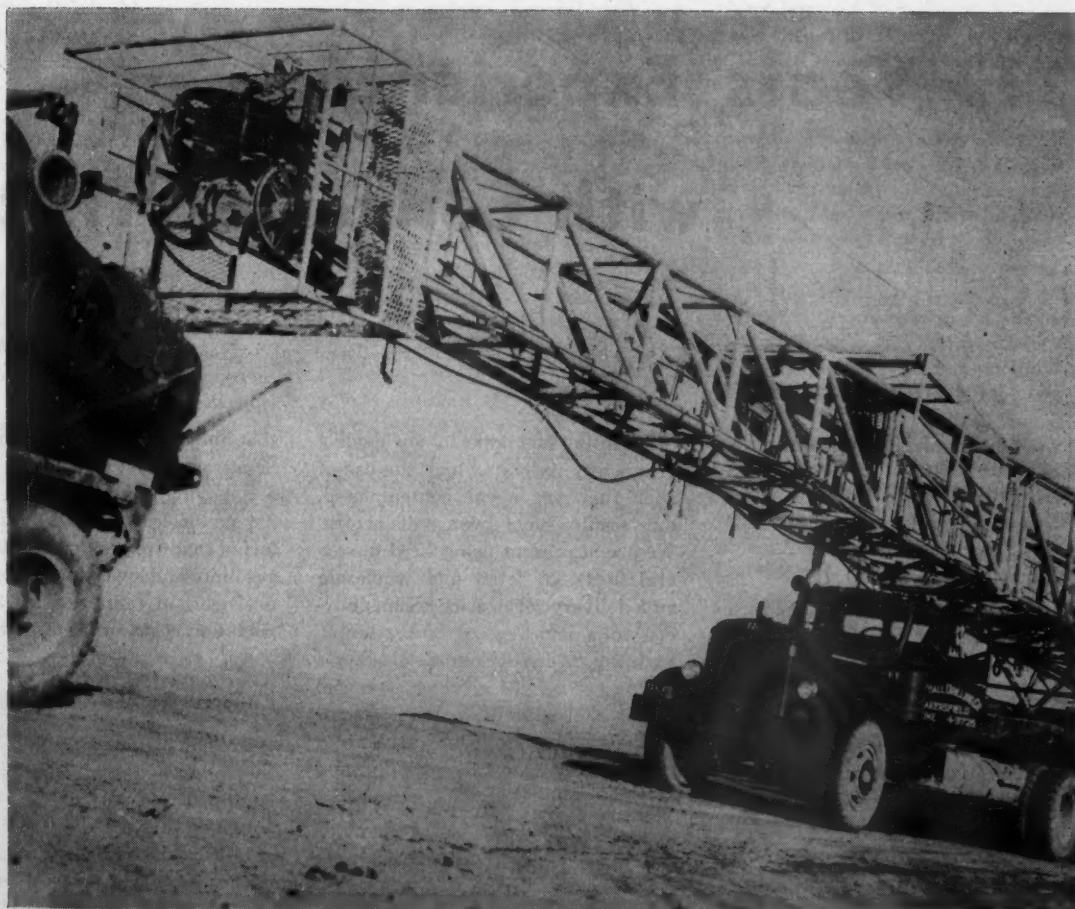
Lt. Olsen was an official and active head of the Blytheville Propane Co., Blytheville, Ark., until recalled to active duty a little more than a year ago.



Butane-Propane

POWER SECTION

INSTALLATION • CARBURETION • SERVICING



Oil well rig on the move. Phil Hall Drilling Co., Bakersfield, Calif., moves off across country with the drill tower on a propane-powered truck.



W. J. Thompson and one of the converted wholesale milk delivery trucks.

13 Years' Experience with Converted Trucks

Proves Value of LPG for Delivery Units

By **W. J. Thompson***
Superintendent of Transportation
Carnation Co., Los Angeles

LIQUEFIED petroleum gas is receiving increasing attention throughout the transportation industry, as a substitute for gasoline. Its use is particularly advantageous in city delivery service, since by its nature it overcomes the principal shortcomings of gasoline which now contribute so heavily to the short engine life and high maintenance cost of engines which spend a high percentage of their time idling and operating at sub-normal temperatures.

Our company has been using LPG in certain of our fleet operations since 1939. In spite of early problems arising from pioneer carburetion equipment, and the recurrent difficulties potential, there is every indication

of mounting fuel tanks in new models of delivery units in which the use of such fuel was never contemplated, our results have been satisfactory. We are at present using LPG in several fleets, in retail and wholesale milk delivery service, ice cream delivery units, and in some of our larger highway transport units, besides a number of service vehicles. Our use of the fuel is steadily increasing as we work out problems incident to engine conversion, fuel supply, and other limiting factors.

Cost of LPG

The cost of LPG varies somewhat in different states, due to sources of supply and transport costs, but as an average the cost is 25% to 35% less than gasoline throughout a very large section of the United States. The trend in LPG prices has been consistently below gasoline. With the enormous present reserve and future

that the fuel price will continue to be attractive. At the present time we are paying approximately 7 cents per gallon less for L. P. gas in California than we pay for regular grade gasoline. The lowest prices, of course, are near oil refineries where transportation costs are at a minimum.

Requirements for Efficient Use

Basically, there are only four major differences between an engine equipped to burn LPG and one equipped to burn gasoline.

1. It is desirable to use a higher compression ratio in order to get similar performance and economy from LPG because of the lower Btu content per gallon. It is possible, of

*From a paper delivered before the Transportation Section of the Milk Industry Foundation in Chicago.

course, to use the higher compression ratio because of the higher octane rating of the fuel. Standard gasoline compression ratios can be used, but there will be a sacrifice in fuel economy and performance.

2. A cold intake manifold without a "hot spot" is required for best performance with LPG. The "hot spot" manifold of a gasoline engine is required to help complete vaporization of the liquid drops of gasoline before it enters the engine. This is accomplished by attaching the intake manifold to the exhaust manifold in such a way that some of the exhaust heat is used to fully vaporize the fuel.

"Hot Spot" Not Necessary

With LPG, which is already vaporized when it enters the manifold, the "hot spot" is not necessary. In fact, by keeping the intake manifold cool, a "denser" fuel-air mixture is taken into the cylinders. If the fuel-air mixture is heated up, it expands and "thins out," so to speak. Naturally the "thinned out" mixture cannot produce as much power as a "denser" mixture.

For this reason the intake manifold is completely separated from the exhaust manifold and is referred to as a "cold manifold."

3. A gas-air carburetor is used in place of the liquid gasoline carburetor. This is an advantage in that the gas-air carburetor is extremely simple and rugged in comparison to the complicated and delicate gasoline carburetor. Nearly all LPG carbur-



These were among the first Carnation retail delivery route trucks to be converted.

etor manufacturers are able to supply adaptors which will fit on the throat of a gas carburetor, thereby making it possible to operate on either LPG or gasoline. Several trucks in the Carnation fleet are so equipped for various reasons.

4. LPG is a liquid only when kept in a closed container under pressure. If kept in a standard gasoline tank, it would boil and escape as a gas. Therefore, a strong pressure tank is required in place of the light duty tank normally used with gasoline.

Other equipment consists of the necessary lines, valves, fittings, regulating valves and vaporizer, discussed in more detail later.

Engine ignition timing should be advanced about 10° to take full advantage of LPG.

Why should the compression be increased in engines burning LPG?

The standard gasoline compression ratio on gas engines is about 6.3 to 1,

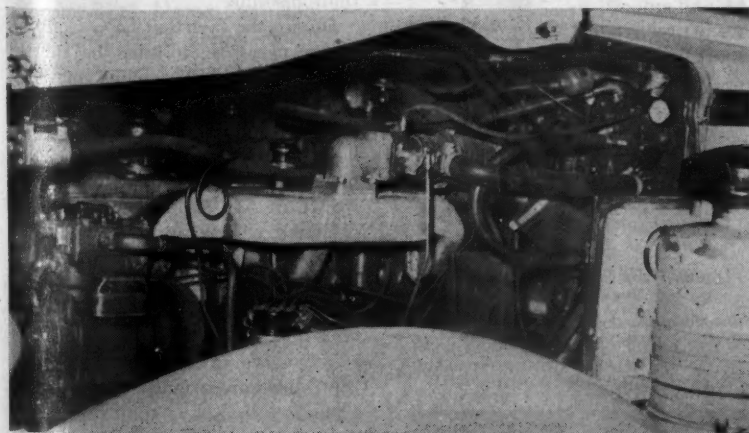
varying with the make of engine. In order to obtain comparable horsepower and economy on LPG it is necessary to use a compression ratio of about 7.5 or 7.8 to 1.

It is true that a compression ratio of 9 or 10 to 1 will increase the horsepower and economy still further, provided commercial propane is available and is used everywhere the trucks will operate. However, LPG varies in the amount of propane it contains. For example, in the South, Southwest and Pacific Coast areas, most of the available LPG contains a high percentage of butane. You will note from the characteristics of LPG, that propane has an octane rating of about 110, while butane is around 95. This means, then, that if the engine is set up with a 9 or 10 to 1 compression ratio for burning propane, and is used on mostly butane, pinging and detonation will result. It is well known that detonation causes piston burning, valve troubles, etc. This is not just theory, but it actually happens.

High Compression Needs Propane

The 9 or 10 to 1 compression ratios that certain LPG enthusiasts claim to be necessary are only satisfactory where nearly straight propane is available. They are not satisfactory where the LPG contains a large percentage of butane.

The Carnation Co. at Los Angeles recently converted a Cummins model H. B. diesel engine to use propane, with a compression ratio of 9.5 to 1. This motor operates beautifully on pure propane and develops well over 200 hp. It was formerly rated at 150 hp. on diesel. The tractor in which this engine operates hauls a gross



Converted Cummins diesel engine with beam carburetion units, of the type used in Carnation heavy transport outfit. Engine develops 35 more horsepower on propane than with the original diesel system.

load of 76,000 lbs. and averages three miles per gallon. We have operated it on a mixture of propane and butane but the results were not as satisfactory.

Advantages of LPG

In addition to being lower in price in most parts of the country LPG offers many advantages to the user. Because LPG enters the engine as a gas rather than an atomized liquid, it burns almost completely, leaving no carbon deposits. The fuel has a

natural high octane rating without additives, so it leaves no lead compound deposits in the combustion chamber, and the fuel is completely free of materials that cause varnish and sludge.

Because it burns almost completely, there is very little poisonous carbon monoxide, and there are no obnoxious fumes and smoke in the exhaust.

While LPG is a liquid in the tank, it vaporizes readily to a dry gas before entering the engine, and there-

fore is more completely mixed with the intake air and is distributed more uniformly to all cylinders. The result is an easier-starting, smoother-operating engine, with each cylinder doing its full share of the work.

Again, because it is a dry gas, there is no liquid to wash down the upper cylinder wall lubricant, and crankcase dilution is impossible. The result is less wear on cylinder walls and bearings and longer useful life of the lubricating oil.

The carburetor used with LPG is very simple, with no delicate jets or accelerating pumps, and because the fuel is under pressure in the tank the fuel pump is eliminated.

With the higher compression ratio used in the engines, horsepower output is the same as or more than on gasoline, and fuel economy compares favorably. Actual fuel economy will vary slightly, depending on where the trucks operate. In the Northern areas, where the LPG is straight propane, fuel economy is likely to be slightly less than in the Southern and Western states, where butane is used in the LPG.

What Are the Safety Factors?

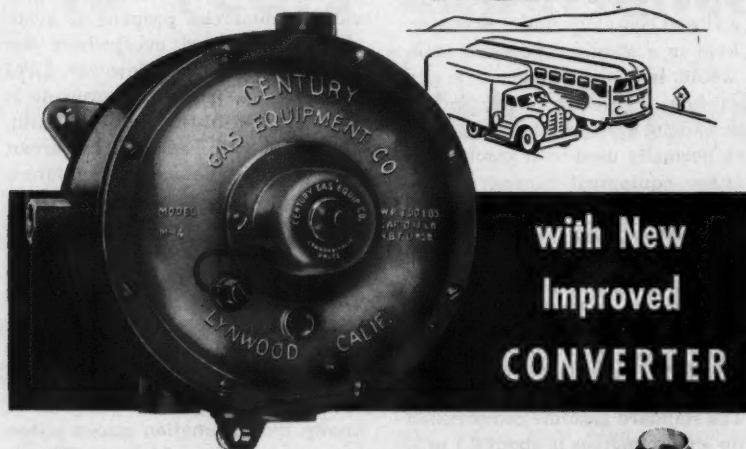
There has been considerable conversation concerning the hazard of using LPG as an engine fuel. Most of the fear of the fuel has been the direct result of earlier experience with makeshift and unsafe installations.

As with any other combustible fuel, certain precautions are necessary to make it safe, and when handled according to established safety regulations, it is no more hazardous and, in some cases, less dangerous than gasoline.

Due to the fact that LPG is stored under pressure, it must be carried in specially built, welded tanks of heavy steel which must be inspected and approved by a licensed state boiler inspector. The tanks must be built to conform to either the ASME or API-ASME codes, and are designed with a minimum factor of safety of four times the maximum anticipated working pressure.

Like any high pressure vessel, each tank must be equipped with a safety relief valve. Some operators vent the relief valves with rubber tubing extending up above the cab so as to dissipate the gas into the air in case pressure should build up to a point where the relief valve operates.

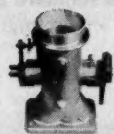
PERFECT Vaporization...



SMOOTHER POWER FOR ANY ENGINE!

TO INSURE AN EVEN FLOW OF LP-GAS and smooth, uniform power the new Century Converter is precision-made of an aluminum alloy that exchanges heat with high efficiency. Its cast-in coils eliminate the usual problems of gaskets and loose connections. And the thinner back gasket serves as a safety diaphragm. If for any reason the converter should freeze, this diaphragm takes up the expansion without damage to the coils or casting. The whole unit is light, compact and easy to install. Once installed, there are no adjustments to interfere with efficiency!

CENTURY GAS EQUIPMENT CO., 11188 Long Beach Blvd., Lynwood, California



Single or Dual Throat Carburetors for all LP-gas engines.



Fuel lock and Strainer protect against dirt and leakage of fuel.

CENTURY

SET IT! SEAL IT! FORGET IT!

CARBURETION for LP-Gas

Oldest Manufacturer
of LP-Gas Carburetion

AMERICAN Better Bilt TANKS

ENGINEERED TO YOUR NEEDS!

Large capacity . . . less dead weight . . . excellent balance . . . maximum safety . . . at low cost. These are features engineered into American "Better-Bilt" LP Gas delivery units. The fact that we've had to double our plant facilities to take care of growing demand is evidence that we are living up to the name of our products — "Better-Bilt!"

"Better-Bilt" Standard, Model No. B31

Constructed with concealed motor fuel tank. Two recessed relief valves in each tank. American LPG delivery units are available complete, ready for service, or may be purchased set on truck, ready for piping. Available in 1250 to 1600 water gallon size.

"Better-Bilt" Deluxe, Model No. B21

Meter and handling equipment at rear. Specially designed for convenience and safety. 1250 to 1600 water gallon capacity. "P-21" — Plains Hi-Capacity Model Also Available.

"Better-Bilt" Peewee, Model No. D11

Ideal for general and fast emergency use. Hose and meter equipment enclosed. Power take-off control in rear. All "Better-Bilt" features. 550 water gallon size shown. Capacity varies with truck size.

"Better-Bilt" Motor Fuel and Tractor-Tailored Tanks

Motor fuel and tractor tanks for all popular makes. Available in sizes from 10 to 30 inches in diameter. American tractor-tailored tanks are complete with all brackets. Ready to replace gasoline tanks.

"Best Built of the many we've used."
— Woodrow Blossman, Ocean Springs, Miss.



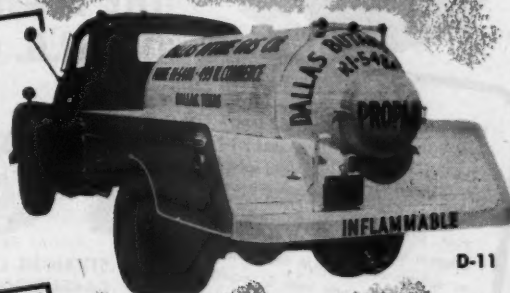
B-31

"This unit has greatly increased driver safety . . . speed of delivery."
— Bill Stubbs, Covington, La.



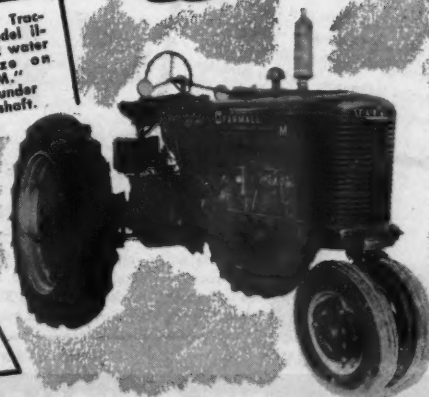
B-21

"The Peewee has saved us many dollars on rush deliveries. Ideal for small tank filling."
— Virgil McCoy, Dallas, Tex.



D-11

"Better-Bilt" Tractor Tank Model illustrated: 32 water gallon size on Farmall "M." Mounted under steering shaft.



LP Tank Specifications and Prices Gladly Sent on Request. Write TODAY!

D. W. Scoggins
Phone RI-9183

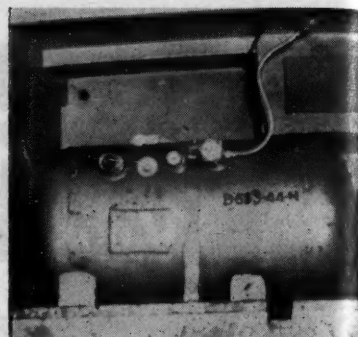
American TANK & MFG. CO.

423 So. Industrial Blvd. . . . Dallas, Texas

By venting these relief valves high off the ground, the heavy gases are pretty well dispersed into the air before reaching the ground, thereby reducing the possibility of producing an explosive blanket of gas near the ground. If, for some reason, the tank pressure exceeds approximately 250 lbs., the safety valves merely release the pressure back down to approximately 250 lbs., and automatically close again. In case of fuel line breakage, an excess flow valve located in the tank outlet automatically shuts

off the fuel supply. In our installations a solenoid lock-off valve on the fuel line automatically shuts off the fuel supply to the engine when the ignition switch is turned off.

An important factor to remember is that with these extremely strong fuel tanks there is more protection in case of an accident than there is with a gasoline tank. LPG tanks have been known to go through severe accidents without even being punctured. In other cases, fires from other sources have merely caused the



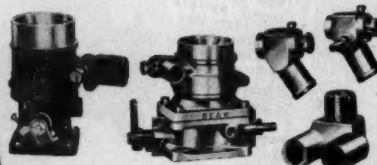
Fuel tanks must sometimes be mounted in unconventional places. Safety relief valve and 10% valve are located on top of tank.



Superior Performance

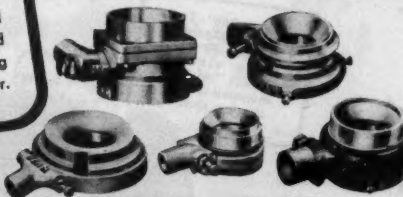
with THE BEAM SYSTEM OF L.P.G. CONVERSION

BEAM equipment is noted for its extreme simplicity and compact design, resulting in quicker, more profitable installations, with a minimum of service required over the years. Whatever your preference of carburetor — adapter style, straight LP carburetor, or spud-in — the BEAM line contains them all. Only one hose is required between the regulator and carburetor. Two simple adjustments — idle and load settings — do the entire job, and no special technique, such as priming or choking, is required of the driver.

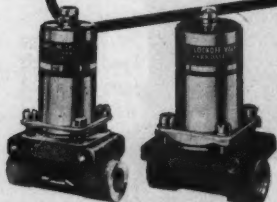


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safety valves to pop open and allow the escaping gases to burn harmlessly at the outlets.

Many other safety features required by the underwriters make LPG trucks as safe to operate as a gasoline truck.

Investigations have shown that insurance rates in nearly all cases are the same on gasoline or LPG equipped trucks carrying the Underwriters Laboratories label.

What Is the Cost of An LPG Conversion?

The cost of making an LPG conversion will vary somewhat depending on the type of equipment that is to be converted. The labor costs will vary on different makes of trucks. The mounting of the tank and regulator is much easier on some trucks than on others. The cost of the necessary equipment for all trucks aside from the tank is usually fairly close. Tank prices vary in relation to size.

Following is the most essential equipment necessary for making a conversion, and the approximate costs:

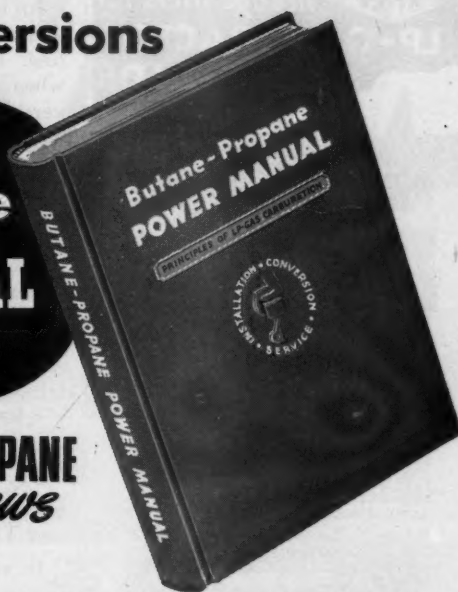
Regulator	\$ 69.50
Carburetor	15.00
Filter	4.00
LPG Lock-off	15.00
25-Gallon Tank	65.00
Copper Tubing and Miscellaneous Items	15.00
Labor	35.00
Machine Cylinder Head	6.00
Total	\$224.50

The cost of making a combination conversion whereby gasoline or LPG may be used alternately is about \$16 more.

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News



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4. Factors Affecting Operating Economy and Power
5. L.P. Gas Carburetion Systems
6. Regulating Gas Pressure and Temperature
7. Fuel Supply System. Vehicle Tanks and Equipment
8. Natural Gas Carburetion
9. Planning the L.P. Gas Installation
10. Checking the Engine's Condition
11. Raising the Compression Ratio
12. Cooling the Intake Manifold
13. Ignition Problems
14. Tractor Conversions
15. Truck and Bus Conversions
16. Passenger Car and Taxicab Conversions
17. Industrial Engine Conversions
18. Installing and Adjusting L.P. Gas Carburetion Systems
19. Manufacturers' Instructions for Adjusting L.P. Gas Carburetors
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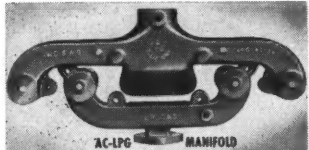
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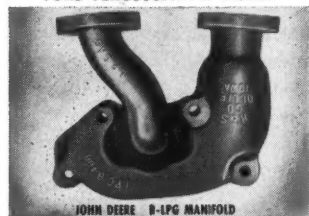
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CASE: DC, SC, and LA



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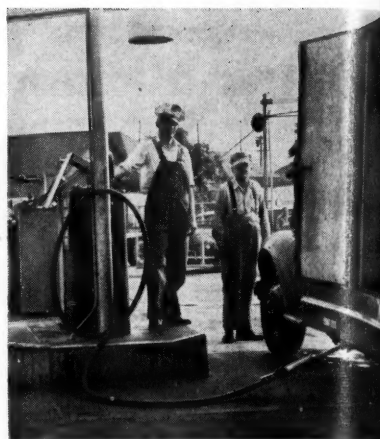
Factors Affecting Operation

An engine must be in good condition to give good performance on any fuel. It should be in top condition when converted to LPG. The conversion will not correct present or developing engine trouble, and unless corrected before the conversion, its failure from other causes might be blamed on the changeover from gasoline to LPG. Bad valves or low compression will result in unsatisfactory performance. The spark should be advanced a few degrees and the ignition system should be in good order. The spark plugs will be required to operate under higher compression and should therefore be in good condition. Sometimes colder plugs are required.

Equipment Details and Their Functions

In mentioning the cost of making a conversion we mentioned the most essential items needed for the conversion. We shall now point out the function of these most important items. The tank, as pointed out before, must be of special design with special filler valves, excess flow valve, safety relief valve, gauge for showing amount of gas, etc.

The flow of the fuel from the tank to the carburetor is as follows: Fuel from the tank enters the LPG filter, which is provided to stop the passage of scale, rust, or other foreign matter which may be carried by the liquid fuel as it flows from the tank. The filter should be mounted near the regulator. It is of cast brass or other strong metal, and is designed for a working pressure of 250 lbs. The filter cartridge may be removed for cleaning or replacement, as needed.



Tanks are filled in the company yard by a man who is specially trained for the job.

The solenoid valve is located between the filter and the regulator, and automatically opens and closes the fuel line as the ignition switch is operated. This valve acts as a positive lock-off when the engine is stopped.

From the solenoid valve the fuel enters the regulating unit. This is a combination vaporizer and pressure reducing device. Its function is to accept the liquid fuel under tank pressure and convert it into dry gas at approximately atmospheric pressure, and to regulate the flow of dry gas to the carburetor in the correct volume and pressure.

Possible icing conditions in the vaporizer, due to drastic temperature drops affecting the fuel and the regulator, have been eliminated by means of water-jacketing and circulating hot water from the engine cooling system by a connection directly from the water pump.



A conversion of Cummins engine on Carnation truck at Bakersfield, Calif.

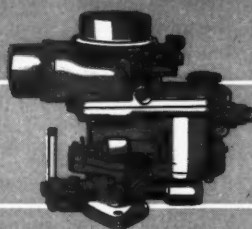
ENSIGN



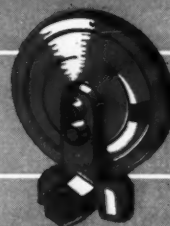
Model "Kg1"
Gas Carburetor



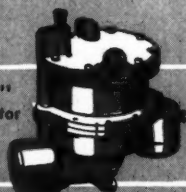
Model "Kgn1"
Combination Carburetor



Model "Cg"
Combination Carburetor



Model "F"
Regulator



Model "B"
1 in. Regulator

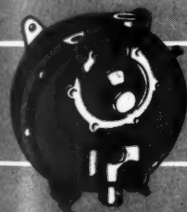
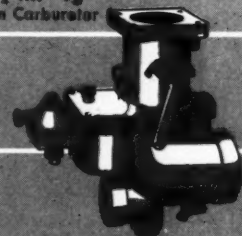


Model "G1"
Gas Carburetor

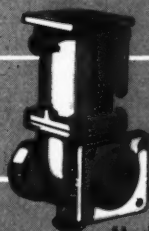


Number 6257
Liquid LP-Gas Filter

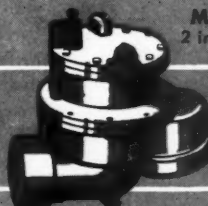
Model 2 1/2 in. "Tg"
Combination Carburetor



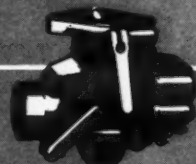
Model "R" 125 H.P.
LPG Vaporizer & Regulator



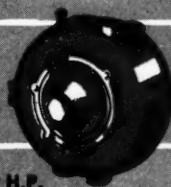
Model "A"
Gas Carburetor



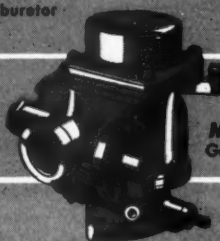
Model "B"
2 in. Regulator



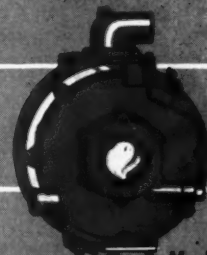
Model 1/2 in. "Tg"
Combination Carburetor



Model "W" 55 H.P.
LPG Vaporizer & Regulator



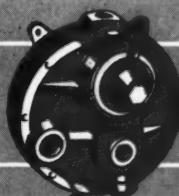
Model "Xg"
Gas Carburetor



Model "S" 450 H.P.
LPG Vaporizer & Regulator



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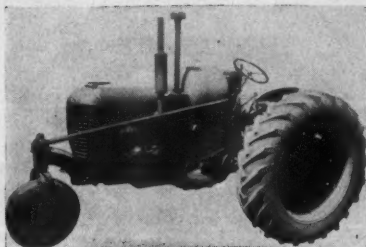
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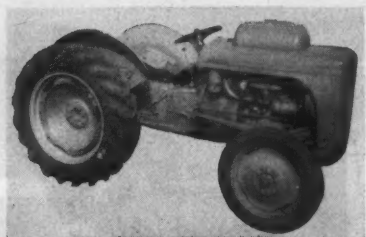
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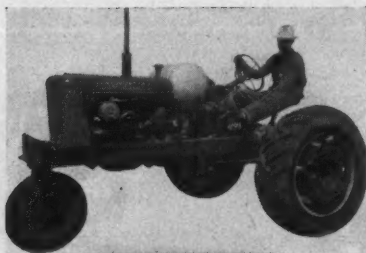
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Says the carburetion manager of one of the largest Propane Corporations: "When I send my men into the field with a Manchester tractor tank for a certain model tractor, I know the conversion will be made with a minimum of installation time and the customer will be satisfied because Manchester tanks fit accurately and neatly."

Though the tanks are priced like stock items, the finished conversion looks like a custom job. Manchester tanks come complete with mounting brackets, hood supports, and instrument panel clips. All valves are UL approved and conform to all industry standards.



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All liquid fuel lines are 3/8-in. copper tubing of the heavy duty type and are added protection against corrosion and fatigue due to vibration. Flared fittings are used for all connections, and all nuts on the tubing are heavy duty forged.

From the regulator the fuel goes to the specially designed carburetor, which mounts on a standard carburetor base. A gas economizer should be provided to assure the correct mixture of fuel and air to give the greatest possible economy at idle or less than 80% of full load.

Actual Experience In Fleet Operation

In 1939 we made our first LPG conversion in the Carnation fleet at Los Angeles. This conversion was made on a 1936 Ford V-8 retail delivery truck. Then, as now, the LPG fuel we used was commercial butane. The truck performed so well even with the type conversion equipment available at that time that in a short while we converted three more retail trucks. The performance of the first four trucks converted was so much better than trucks operating on gasoline that it was decided to start converting the entire fleet.

This meant, of course, a considerable outlay of money even though LPG conversion equipment was cheaper then than now. Converting the entire fleet also meant that we would have to put in our own storage tank and pump for servicing the trucks. This was also necessary in order to get bulk fuel prices.

A 6000-gallon, underground, butane storage tank was installed along with all the incidentals necessary for dispensing LPG fuel, at a cost of about \$3500. Butane at that time cost 8.5 cents per gallon, including tax. Cost of storage facilities and fuel are higher today, but it would be necessary to have your own storage for convenience as well as the benefit of obtaining lower fuel costs, if converting a fleet is considered.

After our storage tank was in and ready for operation we continued converting trucks to butane until the entire fleet of 210 pieces of equipment at that particular location was changed over.

The converted trucks were of various makes and models, and were used for retail house-to-house delivery, wholesale milk delivery and wholesale ice cream delivery.

In fact, we equipped everything from pick-up trucks to our large "over-the-road," heavy duty tractors to burn butane. I even equipped a Plymouth coupe I used with butane, largely for experimental reasons, and found myself in an enviable position during the war, due to the fact butane was not rationed.

The lower cost of LPG compared with gasoline is an important factor in fleet operation, but another big item is the fact that by burning LPG we get two to three times the life out of our motors in our particular kind of work. This is because LPG is a "dry" fuel. There is no liquid fuel to wash the oil down from the cylinder walls as is the case in cold starts and low temperature operation with gasoline. There is no dilution of oil in the crankcase. There is no carbon. In short, LPG is the ideal fuel for internal combustion engines. We have also had less clutch trouble since we started using LPG due to the fact that when the motors are started in the morning the driver does not have a tendency to slip the clutch to let the motor pick up when it is cold, as is the case when burning gasoline.

We have also had fewer cracked blocks and cylinder heads since using butane. We believe this is because the LPG regulator must be heated by water circulating through the cooling system in order to provide vaporized fuel for operation. If water gets low in the cooling system and fails to circulate through the regulator it will usually cause the engine to stop from lack of fuel. This usually happens before the water is low enough to allow the engine to become overheated.

In city delivery work, and especially house-to-house delivery, where engine wear is generally high due to excessive idling, there just is no substitute for LPG for long motor life and general good performance.

We formerly considered 20,000 to 25,000 miles about the maximum between motor overhauls in our city delivery service when operating on gasoline. I am referring to speedometer miles. Actual motor miles would be much more, of course.

Recently we pulled down an engine that had been run nine years in a wholesale milk delivery truck without anything more than a tune-up. The truck had been run 76,000 speedometer miles, which would

mean that the motor had perhaps gone the equivalent of 175,000 highway miles. The block in this engine was worn less than .003 in., and the crankshaft was still standard, proving again that with proper lubrication and no contaminants in the oil the life of a motor can be greatly extended. This is not an exception even though it is not always the rule.

We use oil in wholesale and retail trucks a maximum of 6000 miles between changes, and on long distance over-the-road heavy duty tractors we run the oil 8000 miles between changes. Due to the elimination of dilution, oil in LPG motors will increase slightly in viscosity when run 6000 to 8000 miles. We have a service whereby oil samples from every engine are tested and analyzed at 1000-mile periods. On tests we have found oil is still in good condition after 16,000 miles of service.

We have found that about the same miles per gallon can be obtained on LPG as can be obtained on gasoline, after we raise the compression and block off the manifold heat riser.

Many of our recent conversions are of the combination type whereby we can operate on gasoline or butane by flipping a switch. The trucks which may at times be switched to other branch plants where LPG is not available are equipped this way.

We are naturally butane-minded in this particular operation because we have had very good success with the use of this fuel. If you, however, consider changing over your fleet to liquefied petroleum gas, there are things to be considered, of course: No. 1, the availability of butane-propane in your area; No. 2, the cost per gallon; No. 3, some cities have zoning ordinances restricting certain locations from installing LPG storage. The city fire department is usually the one to contact regarding zoning; No. 4, mechanics must have special training to make repairs and adjustments to LPG conversion equipment. A good mechanic can pick up the fundamentals of LPG carburetion in a short time; No. 5, above-ground storage is definitely recommended whenever possible. This keeps all valves, pipe connections, etc., easily accessible for repair in case of leaks. The above-ground tank is accessible for state and city inspection.

Tanks can be installed either horizontally or vertically. Some are installed vertically to save space.



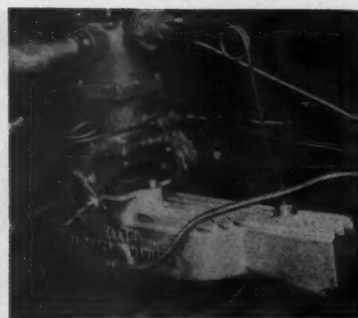
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Members of the Industry Training committee of the Texas Butane Dealers Association who met at Mineral Wells, Texas, Jan. 27, to plan the coming Institute session at Austin and to inaugurate a similar four-year training program for top management to be held at Lubbock in September. Chairman J. A. Farrar of Waco is seated fourth from left in the picture.

Fourth Management Course In Texas Sept. 14-17

Decision to hold a Management Institute Training program in the Plains area of Texas was reached recently by the Texas Butane Dealers Association, according to B. A. Heidt. This will mark the second such school sponsored by the TBDA and follows many requests from dealers in the "irrigation area" of Texas. The Institute will be held at Lubbock, Sept. 14-17, opening with the first year, or freshman, course.

Since the inauguration of the TBDA "college for butane knowledge" at Austin in 1949, dealers in the Plains area found that the spring session conflicted with their busy season which occurs during the irrigation period in the early months of the year.

The fall session at Lubbock will further expand the opportunities for industry training of top management and is evidence of the popularity and success enjoyed by the Management Institute at Austin.

The fourth annual semester of the Austin Institute will be held in the spring at which time diplomas will be awarded those who have attended the first four annual sessions.

L. P. Gas Sales in Utah Increased 48% in 1952

The 4,051,000 gallons of L. P. gas marketed in Utah during 1951 marked a 51% increase over the 2,

683,000 gallons sold in that state the previous year. Consumption in 1952 is estimated at 6,000,000 gallons, a 48% increase, while the national in-

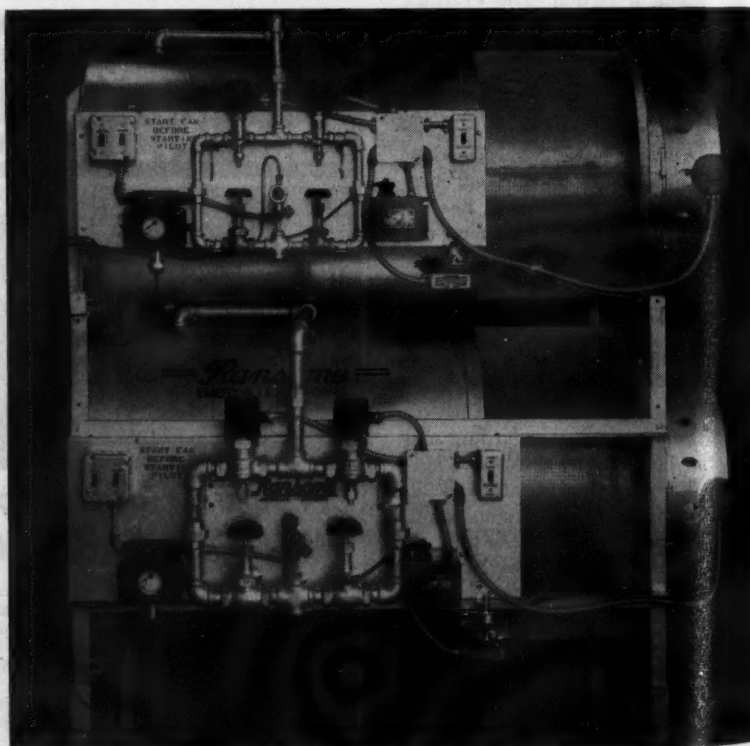
crease was about half that percentage.

The increase is attributed to more widespread agricultural use of L. P. gas for such tasks as crop spraying, weed burning, forage chopping, crop drying, irrigation pumping, crop harvesting, poultry brooding, and heating water for stock. Three out of four gallons, however, went into domestic uses, primarily in rural areas where other fuel services are too expensive—or just don't exist.

Portable Butane Furnace Heats Branding Irons

One more step in the substitution of efficiency for romance is a portable butane-fired furnace which is replacing the roaring wood fire as a means of heating branding irons on the Oklahoma range.

Faster, easier, and more convenient to use, the new L. P. gas equipment has been gaining popularity with ranchers, especially in the state's "Blue Stem Bowl." The modern 1-unit furnace is manufactured by its designer, W. D. Conner, steel fabricator, of Pawhuska, Okla.



Two heat generating systems, stacked for large drying operations, as in cotton gins. (This illustration should have accompanied the story on Page 95 of the February issue where a complete explanation was given. It is a product of the Ransome Co.)

Products and Trade Publications

To secure further information on products or new publications, fill out the coupon and mail, indicating by number the items desired.

1. Table-Top Water Heater

Designed for use in the kitchens or utility rooms of basementless modern homes, Handley-Brown's new "Imperial" water heater is made for flush-to-wall installation and uniformity with standard kitchen cabinets and appliances. Its flat, one-piece porcelain top provides working space for the housewife (there's toe space at the bottom of the white enamel cabinet). Fittings, bucket-height draincock, and 100% safety shutoff control are accessible by removing the "Click Off—Click On" top and front panel. All necessary fittings for installation are supplied with the unit.



The 30-gallon tank can be set up either with low heat, for unvented installation, or with optional 30,000-Btu high heat; the conversion from one to the other is easily accomplished with factory supplied parts. Further economies are claimed because of extra-heavy "Fiberglas" insulation and because the heater can be located near the tap, eliminating long pipe runs. Magnesium rod

protection against corrosion is available. Dimensions are 24 in. wide, 25 in. deep, over-all height 40 in., table-top height 36 in. The tank is made of high tensile steel and the Handley-Brown "Uniflame" burner is designed to use all gases.

Handley-Brown Heater Co.

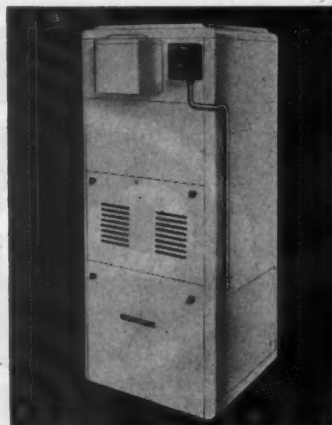
2. Gas Furnace

High in heating efficiency but low in space requirements is the new Model G-805 gas-fired furnace developed by Perfection Stove Co.

This furnace, with a 100,000-Btu input, stands only 60 in. high. It is specifically designed for basement or utility room installation, and finished in white baked enamel to match household appliances.

All controls in this completely automatic forced air furnace are factory installed, with simple connections only having to be made at the time of installation. Savings in installation time and fittings result from the fact that return air connections may be made at either the right or left side or at the bottom.

The single port up-shot type burner was designed by Perfection



engineers. Its design style is aimed at unusually quiet operation. This AGA-approved burner utilizes natural, manufactured or L. P. gases.

Perfection has also developed a new self-contained air conditioning unit which is a matched companion piece for the Model G-805. When the two are used in combination, a year-round air conditioning plant is created.

Perfection Stove Co.



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NAME AND TITLE.....

FIRM'S NAME.....

ADDRESS.....

CITY.....ZONE.....STATE.....

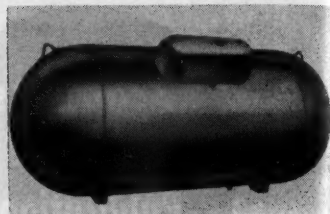


3. Cylinder Truck

Moellenbrock and Wilke announce the production of a 50-pound hand truck for the safe handling of gas cylinders up to 30 in. diameter and 1000 lbs. weight. Construction of electrically-welded, 1¼-in., aluminum tubing provides lightness and strength. The wheels are roller-bearing for easy pushing.

The over-all width is 27 in., and the handles are 63 in. long. A chain of adequate length for all cylinders, is provided to prevent the load from shifting.

Moellenbrock and Wilke



4. Shoulder Filling Systems

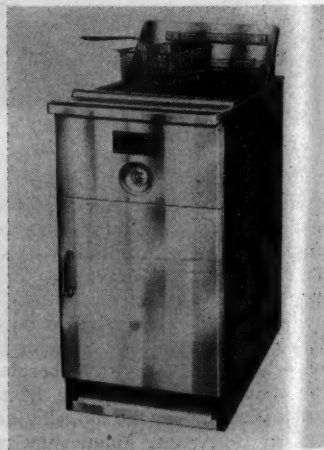
A new line of Hackney L. P. gas systems, just announced by Pressed Steel Tank Co., manufacturer of Hackney L. P. gas cylinders, has been designed with the filling valve and other fittings grouped on the shoulder of the tank.


This location is easy to reach without stretching, and is said to reduce strain on the filling valve and line while the tank is being filled. The liquid level gauge is always in plain sight and can be clearly read without error.

These systems are manufactured in 500-, 640-, 855-, 995- and 1136-gallon sizes, and are furnished complete with fittings, ready for installation. They are designed and built in accordance with the ASME Code for 200 pounds working pressure and comply with the requirements of NBFU regulations, Pamphlet No. 58. *Pressed Steel Tank Co.*

5. Fryer

The Super-Chef Manufacturing Co. is marketing a new 14-SF fryer that is 50% faster in heat recovery than the previous model. This is attributed to a high output, square burner with new enclosed insulated firing chamber, heat-sorber baffle fins, and speed flow dual manifolding construction. The fryer is AGA-approved for 65,000 Btu for all gases.





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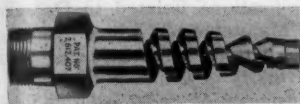
P. O. Box 801

Phone 2-6101

The manufacturer also reports that the low temperature of a patented "Fat Mizer" separate sediment chamber prevents carbonization and recirculation of sediment and prolongs fat life from two to four times. The chamber, which can be quickly and easily removed for thorough cleaning, strains the fat as the food is being fried. The chamber's dual valve system permits fat containing sediment to be drained and strained independent of the bulk of the frying fat contained in the fry pot.

An automatic overflow well reportedly eliminates fat foam-overs and reduces cleaning time. Cleaning is further facilitated by the rounded corners of the one-piece, deep, die drawn fry pot of heavy gauge steel and the absence of tubes and other obstructions.

The fryer comes with stainless steel front and baked enamel cabinet. Large capacity, easy pouring drain pan supplied at no additional cost. Super-Chef Manufacturing Co.



6. Fog Nozzle

Higher efficiency and non-clogging performance are claimed for an improved type of spiral fog nozzles developed and patented by Bete Fog Nozzle, Inc.

As with earlier models, the spiral element of this nozzle shears a continuous film from a solid jet of liquid to form a fine fog having uniform drop size.

The Bete company now offers 47 different models of spiral nozzles in flow rates from 1 to 1000 gal. per min. These are used for fire protection, chemical processing, humidifying, washing, cooling, treating gases, and many other industrial applications.

Bete Fog Nozzle, Inc.

7. Fuel Lock and Strainer

Operators of L. P. gas vehicles can now lock off the gas with a turn of the ignition key, according to the Century Gas Equipment Co., which has developed a new strainer and fuel lock unit for trucks, buses and tractors burning L. P. gas.

The "Fuellock" fits on top of the strainer and is operated by a magnet which uses no more current than a dash light. When the ignition is



turned off the gas line is automatically locked shut.

By keeping out scale and other foreign matter the strainer prevents "Fuellock" and converter valves from leaking. It is easy to install and requires no attention except occasional cleaning by blowing out through bottom drain plug. Does not need to be disassembled. The installation of the strainer and "Fuellock" gives full protection to any vehicle. This new unit is precision made from light, non-corroding aluminum alloy.

Century Gas Equipment Co.



How built-in gas cooking units save space and give uncluttered look to a compact kitchen is shown in 1953 "House of Ideas," Winnetka, Ill. Cooking units used are Chambers stainless steel "In-a-Top" 4-burner and "In-a-Wall" oven, making possible convenient waist-high cooking.

8. Tractor Fuel Tank

A new addition to their line of custom motor fuel tanks for tractors is now available from American Tank and Manufacturing Co.

The new product is a 34-water-gallon-capacity unit, complete with brackets, especially designed for the John Deere-60 tractor, and is of the steering-shaft-through-tank style.

Like other tractor tanks manufactured by the company, this model is assembled by an improved crimping process before welding, which is claimed to largely eliminate moisture collecting points inside the tank. The liquid line dip-tube is a specially fabricated unit not easily subject to breakage.

The tank is furnished with a rotary gauge as standard equipment. A float-type gauge is available at slight additional cost.

American Tank and Manufacturing Co.

New Publications

Petroleum Dictionary Contains 6164 Definitions

A "Petroleum Dictionary and Products Manual," which will prove a valuable aid to buyers, sellers, consumers and salesmen of petroleum products, particularly those who do not possess a technical background, has just been published by the Petroleum Educational Institute, of Los Angeles. This 502-page book contains 6164 entries and 2113 illustrations and is not only a dictionary but also gives information on the fundamentals and application of petroleum products as well.

Much of the factual information about the use and application of petroleum products, secured by the Institute during 16 years' research in connection with its home study courses in fuels and lubricants, is included in this book.

The "Petroleum Dictionary and Products Manual" gives a simple, understandable definition of the many technical and semi-technical terms generally found in periodicals, books and other literature in connection with the application and use of petroleum products and much of the equipment utilizing these products and what these tests mean to sellers, buyers and users of petroleum products.

This work is so complete that it can become a valuable products information manual on the most common petroleum products used in the automotive, agricultural, mining, lumbering, steel, railroading, ceramic, refrigeration, and many other industries. The "Petroleum Dictionary and Products Manual" sells for \$8 and may be had from Petroleum Educational Institute, Dept. E., 9020 Melrose Ave., Los Angeles.

Selwyn-Landers Issues New Tank Fittings Catalog

Every valve, gauge, fitting, and accessory used for L. P. gas motor fuel tanks is shown and its function described in a new Selwyn-Landers catalog. Illustrated in color, the catalog is designed especially to do an educational job for the many dealers and salesmen who are not intimately familiar with the subject.

Instead of merely listing each part separately, in typical catalog style, this new Selwyn-Landers publication also shows a typical tank with each fitting installed properly. The bulletin is intended to be of practical,

everyday use to manufacturers of LPG-powered tractors, trucks, and buses, as well as to tank builders, LPG fuel producers, tractor dealers and servicemen, and LPG dealers. Selwyn-Landers states that the book is especially helpful to carburetor and installation men.

Lighting Buoys with Propane Is Popular in Britain

The use of propane gas as a fuel for lighting buoys in the British Isles has been experimentally used by the Clyde Lighthouses Trust. Certain technical difficulties were encoun-

tered in the initial period but these have been largely overcome and the Trust has now a buoy in use in the river, the actual buoy acting as a container for the propane gas.

This buoy is giving a clearer and better light than oil gas buoys and to that extent the experiment is regarded as having been so far completely satisfactory. The extension and development of the scheme remains to be determined.

The Clyde Lighthouse Trust is the first British authority to experiment and use propane-fed shipping buoys and their work has been watched with interest by other authorities. The system has been developed in Holland where it has been adopted fairly widely after a period of initial trial.

U. of California Course Includes LPG for Power

A session devoted to the study of L. P. gas engines is included in an 18-lesson course on "Motor Truck Specifications Related to Operation and Maintenance," which opened on Feb. 10 under the auspices of the University of California Institute of Transportation and Traffic Engineering. "LPG Engines" gets special attention March 17.

The first portion of each Tuesday evening's session will be devoted to the functioning of one of the elements of the commercial vehicle, i.e., engines, front axles, brakes, etc. The second portion will include a case study of an actual truck in one of the recognized weight classifications. The meetings are held in the Ethyl Corp.'s auditorium, at 1141 Huntley Drive, Los Angeles, where chassis dynamometer facilities are available for power tests and demonstrations.

Have Electrical Troubles In French Morocco, Too

Interesting sidelight on how butane contributes to better living in far corners of the world is found in a recent exchange of correspondence between a woman who has lived in Port Lyautey, French Morocco, and one who expects to reside there soon.

"Most people," says the writer, "carried their gas stoves and gas refrigerators after having them converted to butane gas. There are no gas lines there, only bottles of butane. The local electrical facilities are not powerful enough to carry your electric stove or refrigerator, I don't think. If so, your electric bill would be enormous."



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Answers To Questions

Discussion Guide for Safety Meeting on "The Nature of Liquefied Petroleum Gas"

(Continued from Page 62)

1. All three products are composed of hydrogen and carbon, and are obtained from underground petroleum deposits. Gasoline is normally liquid at atmospheric temperatures. L. P. gas is normally gaseous at ordinary atmospheric temperatures, but may be converted into a liquid for convenience in storage and transportation by processes combining compression and cooling. Natural gas is normally gaseous at any atmospheric temperature, and while it may be liquefied by extreme pressure and temperature, this is not commonly done.

2. The three essential differences between propane and butane which must be considered in their use are: a) heat content—butane, 103,000 Btu per gal., propane 91,300 Btu; b) boiling point—butane, 32° F, propane, -44° F; c) vapor pressure—that of propane is much higher than that of butane. (See chart.)

3. Because of its higher vapor pressure, propane requires much stronger containers than butane. (See chart.)

4. It is not safe to store propane in butane containers. Safety valves on butane containers must be set to release at relatively low pressure—generally from 100 to 125 psig, depending on tank design. Normal butane develops 61 psi pressure at 110° F. At a temperature of 50° F, propane develops a pressure of 77 psig, and at 110° F the pressure would be 197 psig, hence it would not be possible to keep propane in the butane tank except on a rather cool day. Safety valve settings on propane tanks are made at approximately the maximum working pressures of the tanks—200 to 250 psi.

5. Normal butane does not develop sufficient vapor pressure in cold weather, and it does not vaporize at all at temperatures below 32° F without the application of heat.

6. Propane is the fuel recommended for the "adequate storage" program, except in areas having very warm winters. During a Northern winter, we might find only the propane vaporizing out of a mixture, leaving a concentration of butane in the tank, with the possibility that the customer might run out of usable fuel while there was still a considerable amount of liquid in the tank.

7. No tank or cylinder should ever be filled completely full of liquid L. P. gas. A vapor space at the top is necessary to permit expansion in case

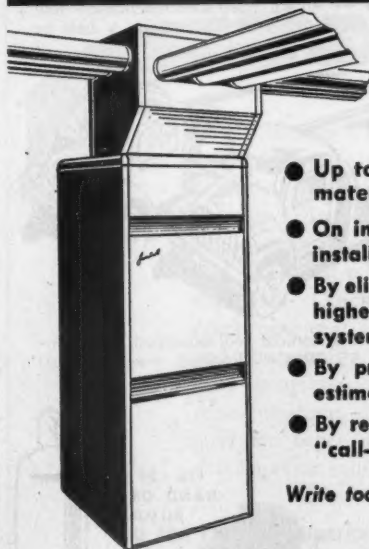
the temperature should rise. The required vapor space is specified in NBFU Pamphlet 58, which see.

8. A safety relief valve is used to permit the escape of small amounts of gas if pressure gets above the relief valve setting, and thereby holds the pressure in the tank down to a safe limit.

9. Similar safety relief valves should be installed in the plant piping wherever liquid fuel may be confined between two closed valves. The same applies to the piping on a bulk delivery truck.

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10. Filled cylinders should be stored, installed, and transported in the vertical position, with the valve up, so that if the safety relief valve should operate, the escaping fuel would be vapor instead of liquid, thus limiting the loss and the hazard to a small amount of fuel.

11. Never. See No. 10.

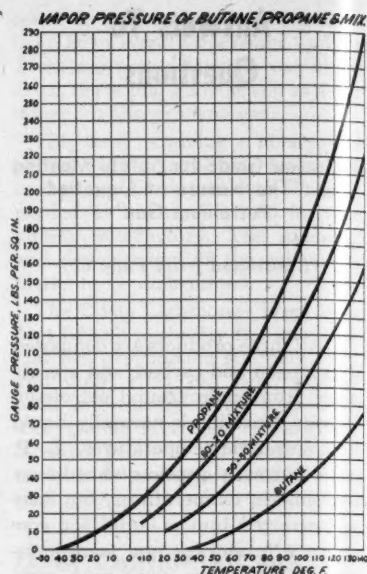
12. Vaporized L. P. gas, at atmospheric temperature, occupies approximately 240 times as much space as it does in liquid form. (Volume of va-

por varies some between butane and propane.)

13. Propane is $1\frac{1}{2}$ times as heavy, and butane twice as heavy, as air.

14. Being heavier than air, L. P. gas escaping in still air would tend to flow downhill; hence, the area of greatest danger would be on the downward side of the point of escape. Since air is seldom completely still, the whole area around the leak should be regarded as dangerous.

15. A breeze would tend to carry



Differences in pressure of butane and propane affect the design and safety relief valve settings of containers. (This chart was inadvertently omitted from Page 49 of February issue).

the escaping gas in the direction of the movement of the air, but, once again, the whole area around the leak might be hazardous. Take no chances.

16. Tell the customer to close the valve at the cylinder or tank or the line shut-off valve at the house, if there is one; close all doors between the kitchen and other parts of the house, eliminate all possible sources of ignition, open the kitchen windows, and then stay out of the house until the gas has been dissipated. Then see that someone who knows how to take care of service problems gets there immediately.

17. Escaped gas is never safe until it is dissipated in air to a degree below the lower limit of flammability. If it is too concentrated to burn, it must still go through the range of flammability before it becomes safe. As long as you can smell it, you should suspect that is unsafe.

18. If the gas is not burning and its escape can be stopped by closing a valve, close it. If there are nearby sources of ignition, try to have them made safe as quickly as possible. See that the fire department is called at the earliest possible moment. Try to keep people and vehicles out of the danger zone.

19. An excess flow check valve is an automatic closure which is re-

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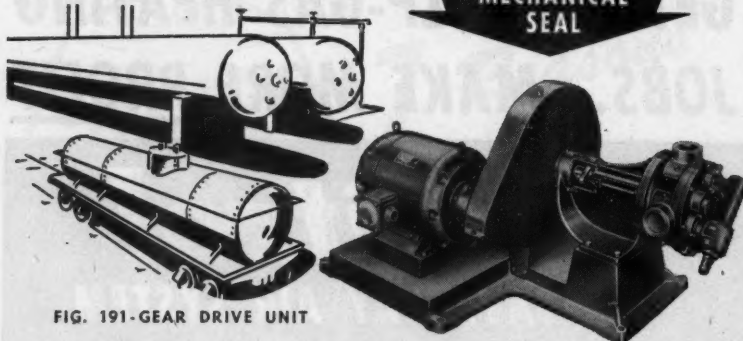


FIG. 191-GEAR DRIVE UNIT

MOTORIZED BULK PLANT PUMPS — All equipped with mechanical seal and non-lubricated bearings — Sizes from 5 to 55 GPM — Gear, V-belt or direct drive mounting arrangements.

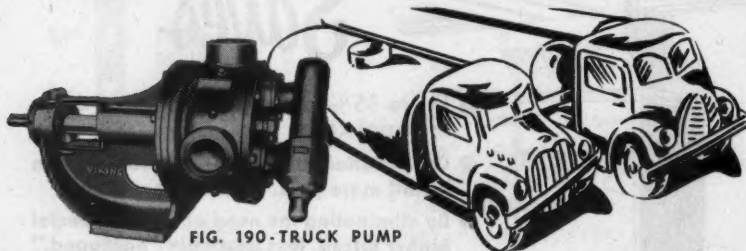


FIG. 190-TRUCK PUMP

TRUCK MOUNTING PUMPS — All mechanical seal equipped, also non-lubricated bearings — Sizes from 20 to 55 GPM — Rugged, integral thrust bearing construction for truck use.

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FIG 57A1
HAND DRIVE
PUMP



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quired to be installed in the outlets of all bulk storage and transport tanks (other than ICC cylinders) and in vehicle tanks. It is designed so it will be closed by the force of the current of fuel flowing at a rate approaching the full capacity of the line. Its purpose is to automatically close the tank outlet, thus stopping the flow of fuel in case the line leading from the outlet is broken or disconnected while the valve at the tank outlet is open.

20. A small leak will not cause the excess flow valve to close.

21. A small leak may be immediately dissipated in the air, or it may accumulate in a dangerous amount. The slow leak is a continuous hazard until it is repaired. A broken fuel line protected by an excess flow valve should result in the escape of only the amount of fuel which is between the excess flow valve and the break. This might under some circumstances be a dangerous amount, but it is less dangerous than allowing all the fuel in the tank to escape, which the excess flow check valve automatically prevents. It boils down to this—all small leaks should be corrected at once, and no fuel line should ever be broken. Only care prevents accidents.

22. The odor is an aid in detecting leaks or escaped gas. By itself, L. P. gas is colorless, odorless, and cannot be seen unless it causes condensation of moisture as it escapes.

Venezuela Receives LPG Through Undersea Pipe Line

The Shell organization has begun the first use of its undersea pipe lines to supply LPG to Caracas, capital of Venezuela. Shipped in bulk by tanker from the Shell Caribbean Petroleum Co. refinery at Cardon, the LPG is discharged through a 4-in., undersea pipe line about ¼ mile long to the Catia de la Mar petroleum terminal, from which it is pumped through an 8-in., 10½-mile line to the Caracas storage terminal, where bottling facilities exist.

In discharging the LPG, water is pumped through a second line into the cargo tanks of the ship to force out the LPG. An automatic water separator prevents the discharge water from passing through to the storage tanks.

The Catia de la Mar installation has a storage capacity of some 140 tons of LPG, and the Caracas installation can hold twice that tonnage.

U. P. Will Try Propane In New Turbine Engine

Union Pacific Railroad is going to experiment with the use of propane gas in its new gas turbine locomotives, officials of the road have disclosed. The U. P. owns six turbine-type engines and has 19 on order. They burn low-grade Bunker C fuel oil, but P. J. Lynch, operating vice president, said one of the freight locomotives would be converted to burn propane gas.

Mr. Lynch explained that propane gas has been successfully used in stationary power plants. If it's successful in locomotive use, it would be cheaper than Bunker C, and an additional advantage would be savings in wear and tear on parts caused by the impurities of fuel oil.

However, it is not known what quantities of propane would be required. Mr. Lynch added that an immediate problem would be the transfer of the gas to the turbine from a separate, pressurized supply car.

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A. W. Anneberg Sells Business To Kansas Firm

A. W. Anneberg, Fort Scott, Kan., has sold his L. P. gas business at the south edge of Fort Scott to Tony Roitz of Pittsburg, Kan. Mr. Roitz is owner of the Roitz Oil Co. in Pittsburg.

Under the new management, Vincent Sitter, Arma, Kan., will drive the firm's truck on the routes. Frank Becco will continue to fill orders for gas at his store on U. S. Highway 69.

Propane Fires Lime Kiln in Wisconsin Industrial Plant

THE Rockwell Lime Co., Manitowoc, Wis., has completed an important industrial propane installation in the lime industry.

In this industry, where fuel costs are a major factor in production expense, the geographic location of the

plant combines with other factors to make the use of propane practical from the point of view of economical operation.

For the time being the installation is limited to two vertical kilns used for the calcining of dolomite. However, the management of the plant plans a future broader application in connection with its current expansion program.

Two 30,000-gallon tanks, together with associated unloading equipment and a vaporizer house, have sufficient capacity to care for all future needs.

The propane-burning kilns are each equipped with four North American No. 70 burners and with Rockwell Emco meters which provide a close check on the fuel consumption.

Fuel consumption in connection with the propane installation is somewhat lower than original estimates anticipated. The kiln product continues to be of excellent quality and the amount of labor originally required to hand fire the kilns with wood has been substantially reduced.

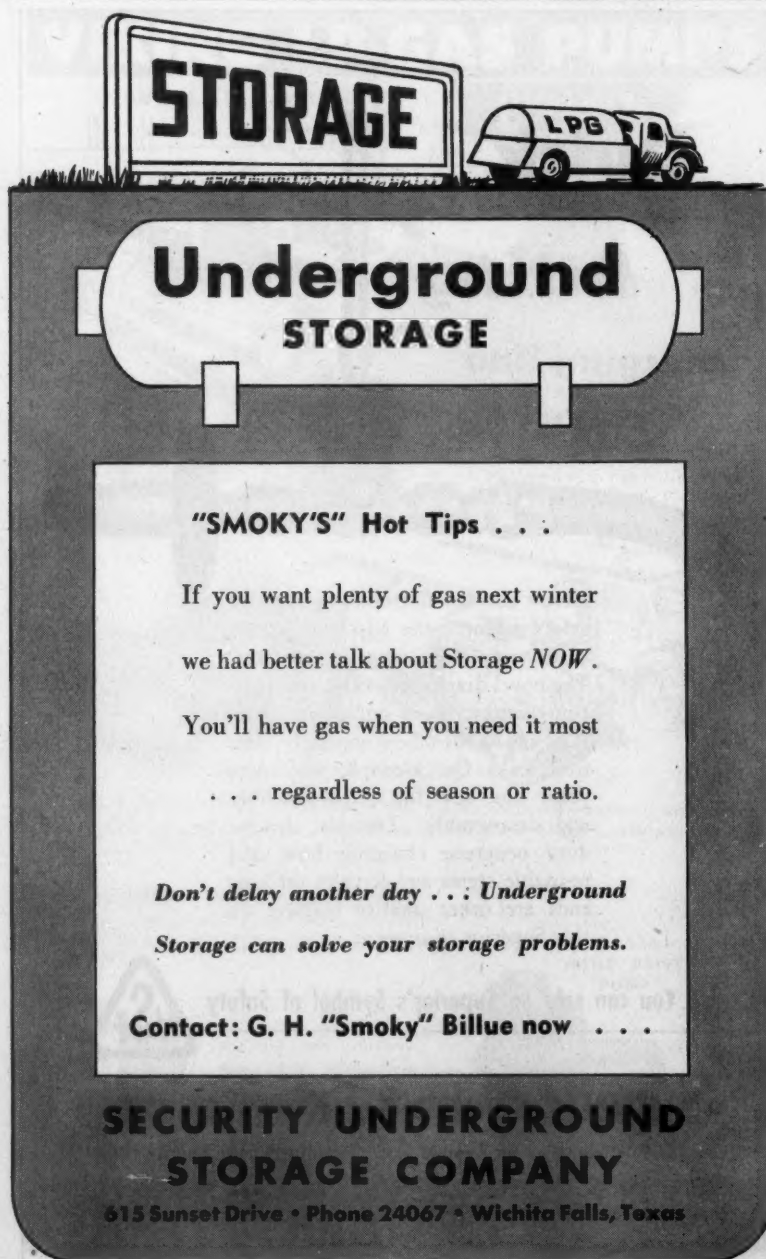
Management contemplates the future wider application of propane to limestone drying, rotary kiln lime burning, transportation and processing equipment, and plant heating.

Michael Brisch, president of the Rockwell Lime Co., has been in charge of the development program. Atherton & Evans, consulting engineers, Annville, Pa., are responsible for the design of the installation, and valuable assistance has been rendered by W. M. Roberts and Rex Hoy of the Milwaukee office of the Phillips Petroleum Co., who supply the fuel requirements for the operation.

Installs New Storage At Myrtle Point, Ore.

Bay Heat, Inc., with headquarters in Marshfield, Ore., has recently installed a 30,000-gallon propane storage tank at its Myrtle Point, Ore., branch, where bottling plant facilities are established.

John L. Rhodes, Myrtle Point, manager, serves a large territory of domestic users and also has arranged for tractor and truck conversions.



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Novel Applications of LPG Made by British Firm

The latest issue of the "Calor Gazette," publication of the "Calor" L. P. gas organization of London, tells of the use of Calor gas in such varied places as an Arctic expedition camp, a royal yacht, and on a pilgrimage to Lourdes.

The Calor cooker which was parachuted to the British Navy's North Greenland expedition was smashed when its parachute failed, but a replacement was delivered safely—and quickly—and the men depend on it as their only source of cooking and hot water.

Seven hundred fifty pilgrims, many of them ill, were led to Lourdes by Roman Catholic Archbishop Masterston of Birmingham, England. Dealer E. E. Cammack (who is not himself a Catholic) lent the pilgrims portable cooking equipment and provided them with L. P. gas free of charge. Archbishop Masterston described the equipment as "the most valuable asset."

The royal meals were eaten by the Duke of Edinburgh last summer on his cruise to Sweden and Finland aboard the yacht "Patricia," which was equipped with an L. P. gas range.

Superior Propane Makes Changes In Branch

Superior Propane Limited, Toronto, Ontario, distributor of "S-P" gas and appliances, has made two major changes in its management. R. G. Samworth has joined the organization as Maple district manager. Maple territory covers Maple bulk plant, branches at Peterborough, Belleville, and Barrie, as well as many dealers and agents. Mr. Samworth comes to Superior Propane from Three Rivers, Quebec, where he was general manager of City Gas and Electric. Previously he was associated with Alvar H. Simpson & Associates, Canadian distributors for the Surface Combustion Corp., of Toledo.

Jack Hayes, formerly branch manager at Peterborough, has been transferred to Stratford as district manager. His area includes Stratford bulk storage plant and Guelph branch, with agencies at many locations throughout Western Ontario. Mr. Hayes was formerly associated with Harding and Hayes Limited, of Peterborough, and his services were retained when that company's business was purchased by Superior Propane Limited in August of last year.

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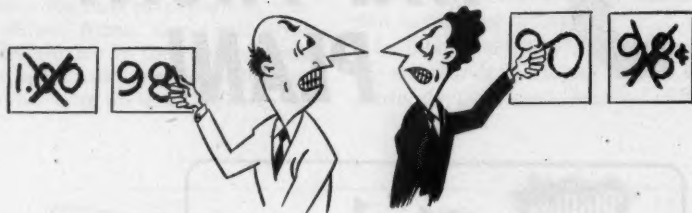
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There's No Profit in War

Don't Steal Customers

Don't Cut Prices

Chapter 19

ETHICS in the gas business between competitive gas dealers? Certainly, and why not? In some territories ethics between competitive gas dealers do exist, and where this is so this business of ours has prospered beyond the understanding of those who operate in "dog-eat-dog" territory.

This isn't a starry-eyed treatise on idealistic, communistic, impractical

in the gas business starts with the stealing of customers. Before you start this practice, let me ask you a question. What reason have you to believe that your personal magnetism is of such superior quality that people prefer to do business with you? Is it because your name just happens to be John Jones and you think well of it? It is human nature to think well of one's self, but do others hold that same exalted opinion of you? Hasn't there got to be some inducement other than a name for people to transfer their gas business to you?

a corner on the supply of service? Isn't it just barely possible that someone else can come along and give better service than you give? You are on dangerously thin ice if your only justification for raiding the other fellow's gas customers is a brand of superior service which you think that you can give. Deflate your ego on this score!

All other things being equal, the public will buy where it can get the most for its money. Perhaps this may give you an idea; you may think to steal gas customers by offering lower gas prices. You aren't over and above bright if you think to acquire your competitor's customers in this way. He can cut prices too, and inasmuch as you have started by cutting under his price it would not be unlikely for him to go below your price. It is a vicious cycle which ends up in both of you doing a whole lot of hard work for nothing. Don't cut below your competitor's price, but meet it, if by so doing you can still make a reasonable profit. If you cannot make a reasonable profit you are better off without the business.

Timid souls will hold up their hands in horror at the thought of selling at the same price as your competitor does, for they live in fear of that which an over-watchful government calls "collusion" which, in this instance, means an agreement between people in the same business to fix or equalize prices.

There is no crime in selling merchandise at the same price as your competitor if there is no agreement

A code of ethics is the shortest route to the millions of unsold prospects

practices, but rather some good old-fashioned common sense advice which comes of having learned the lesson of cooperative effort in the hard school of experience. It will help you to avoid disappointing disillusionment, prevent many business headaches and make you richer in dollars and cents if you will but take heed of it.

• Most ill will between competitors

I know your answer before you give it. You intend to give superior service! Is there any reason why you can give better service than your competitor in the gas business can give? You will counter with, "But my competitor doesn't give good service!" Maybe he doesn't, but what reason have you to believe that he can't, and furthermore, what reason have you to believe that you have

with him to do so. You don't need either an oral or a written agreement. Your actions will speak louder than words insofar as your competitor is concerned, and there isn't a law in the land to prevent you from getting as much for your product as your competitor does. Cutting the gas price for just one customer may mean that you will have to cut it for all of your customers. Don't let



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TRUCK TANKS • TRANSPORTS • L.P. GAS SYSTEMS • CYLINDERS**

avarice throw you for a net loss!

Even if you do not believe in ethics in business, it still isn't good practice to "raid" the other fellow's customers. You may be a small operator today, for which reason you may get by with it for a while. Your larger competitor is loath to get into a price war, for he has more to lose by it than you do, but he has a memory. Some day you will be larger, and then you, too, will be vulnerable to raiding tactics. When this day comes you will just

be swapping customers back and forth.

Nobody gains in just swapping customers. I learned that in the oil business 35 years ago. Four of us who were competitors got into that kind of a mess. Gallonages were not increasing as they should, but we were certainly busy putting in and taking out gasoline pumps. We finally woke up to the fact that we were supporting a lot of service men for no good reason at all. Collusion

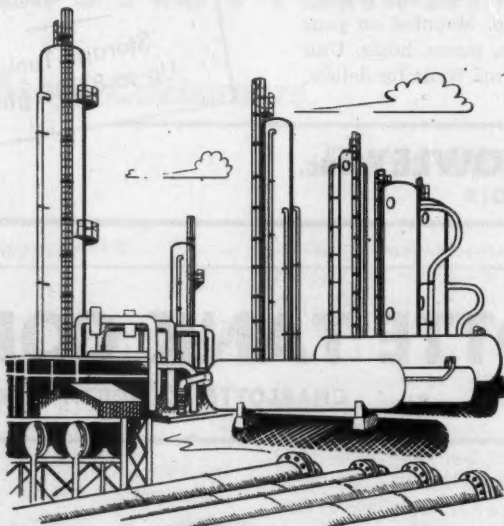
or not, we stopped that kind of business in a hurry when we faced the facts. After that all of us got plenty of new business, and our service costs were cut to a fraction of what they had been.

Every time that you are forced to take out a gas installation and reinstall it in order to keep up the number of your customers you are thrown for a financial loss. Not only do you lose, but the gas business as a whole loses, too. It loses because while you are fooling around in this way the electric boys are getting the new customers that you should be getting.

If you are a good gas man you will realize that your real enemy is Reddy Kilowatt, and not the other gas man across the street. Every installation

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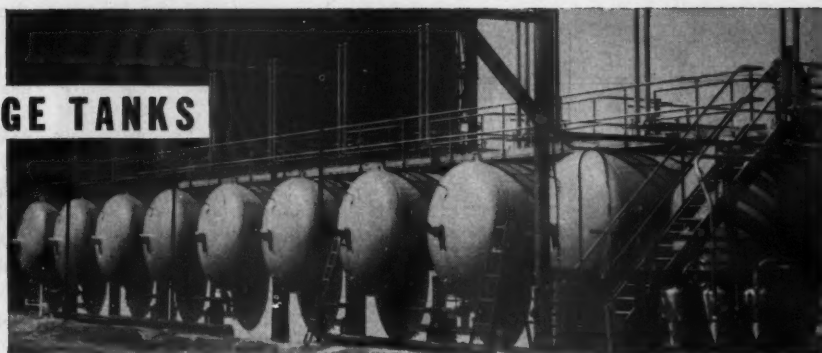
that you make is just one less that Reddy Kilowatt can make, and every time that you take a customer away from him you weaken him. Insofar as possible, each gas installation that you make should be a new one. The only time that a gas installation should be removed is when a building is torn down. For your ultimate good in this business you must think and act in it in terms far greater than the immediate profits accruing to you, John Jones!

Swapping or "stealing" your competitor's customers fosters lack of customer responsibility and engenders lack of respect for contractual obligations. This business is based upon signed contracts with gas consumers. Every time that a contract is broken it lowers the customer's respect for contracts as a whole. Why have any contracts at all if they may be so easily broken or disregarded?

There is an old saying that "it is

10 OF A FINAL INSTALLATION OF 46 PROPANE STORAGE TANKS

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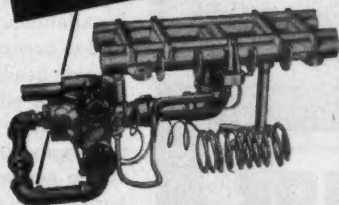
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cheaper to move than to pay rent." This might be paraphrased for our benefit as "it is cheaper to change gas suppliers than to pay your gas bills." Unfortunately there are many dead-beats in this world, and if they can get by with it they will swap gas suppliers rather than pay their gas bills.

When anyone comes to me saying that they wish to change from someone else's gas service I am at once suspicious. Possibly they wish to change to my gas service in order to



avoid paying someone else for the gas that he has delivered to them. I know that I don't like to lose a gas customer, particularly if he owes a gas bill, for my chances of collecting it after he has changed to someone else's service are mighty slim unless I resort to law. No one gains in such cases except the lawyers. So how is your competitor going to like it if you take a customer away from him and he is unable to collect a gas bill because of it? How would *you* like it? Remember, the shoe may be on the other foot sometime, and that foot may be your own!

Taking the other fellow's customers leads, almost without fail, to free gas installations, and you really can't afford to become involved in that. The biggest headache of this business is the large amount of capital investment which is required for gas containers and gas regulating equipment. If the customer has to make some part of that investment it mitigates the condition somewhat. Customers think twice before changing suppliers if they have to pay another "service entrance charge."

Of course, if you have a lot of money to throw away you can go ahead and make free installations, but be sure that you are prepared to live with the headache which you have created, for you can rest assured that the other fellow is going to follow

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your example. He has got to do it if he wishes to remain in business. If you are working on borrowed capital, as most gas operators are, it is all the more reason why you cannot afford to be so generous. Why pay interest on something that you practically give away?

If this matter of raiding the other fellow's gas customers stopped with retaliatory measures it would not be so bad, but as profits disappear other practices raise their ugly heads. We don't like to mention these things, but as we are washing our dirty linen we might just as well haul all of it out of the closet.

Evils Beget Evils

When the gas business gets to warring within itself unfair and even dishonest trade practices are apt to appear, particularly if the going gets rough. Deceptive and unmeaning units of measurement begin to appear, and we have heard of short measurement. When this becomes a practice it isn't long before it is known and broadcast by electric competition to the detriment of good and bad operators, alike, in the industry.

If this were all that there is to it we might in time live down the memory of such instances, but unfortunately these happenings set off a chain of distasteful events. One of the inevitable results is rigid regulation by public utilities commissions as well as supervision by weights and measures departments. Do you want regulation, outside supervision and a horde of incompetent political job holders sticking their noses into your business and telling you how to run it?

Embark upon an ethics-free spree in this business and you are well started upon the road to such unpleasant results. Even though your own conduct is above reproach in event of a price war, you may have a competitor who is not as scrupulous, and if he becomes involved in shady practices you are going to be tarred with the same brush. This is one business in which it really pays to be your brother's keeper!

As profits disappear before cut-throat competition it becomes necessary to make economies, and unfortunately this is often done by cutting corners on gas installation to the point of unsightly installations and



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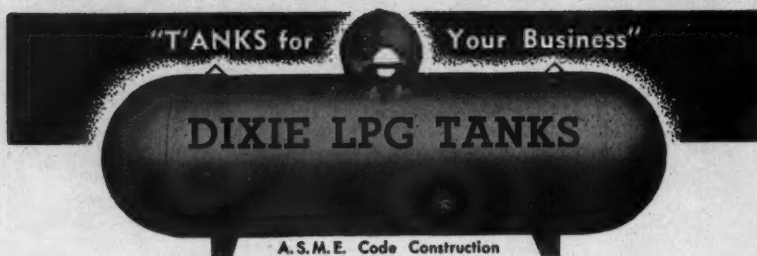
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even unsafe ones. This leads to accidents, higher insurance rates, and ultimately restrictive action by regulatory bodies.

Do you wish to have it compulsory for you to obtain a license in order to remain in the gas business? If obtaining such a license required you to pass a written examination, could you pass it? Do you wish to have laws passed which require every gas installation to be inspected; do you want the attendant expense of such inspections? Would you like to have all of the attendant red tape? How would you like to be forced to employ only licensed installation men?

Such a law has already been attempted in Massachusetts and I understand that it does exist in some states. When you get into hiring only licensed employees you are extending an invitation to the labor unions to take over control of your business. All of these things can and will happen if you help to make protection of the buying public a necessity. I know of no way in which you can make these undesirable things come to pass more quickly than to become embroiled in cut-throat competition with your competitor in the gas business.

You will get much more out of the gas business if you look upon your associates in it as teammates rather than competitors. There can still be good natured rivalry between you just the same as there is between opponents in the field of sport. Your real and only competitor is Reddy Kilowatt. How can we present a united front against this rich, unscrupulous competitor when distrust and hatreds exist among ourselves? The electric monster is apt at Stalinistic tactics, chief of which is to divide and conquer. We are playing right into its hands whenever we engage in any practice which divides and weakens us. At this point it is well for us to pause long enough to summarize the evils which a lack of ethics in this business can bring upon us.

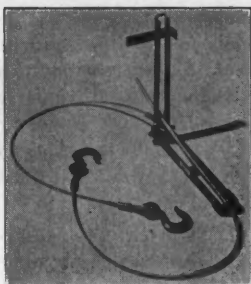
1. Counter-raiding of customers.
2. Excessive and unnecessary installation costs.
3. Decreased profits and even financial losses.
4. Lessening of consumer responsibility.
5. Evasion of payment of just gas bills.
6. Free installations.
7. Gas price wars.

8. Deceptive and dishonest trade practices.
9. Control by public utilities commissions.
10. Policing by weights and measures departments.
11. Discriminatory and restrictive legislation.
12. Unsatisfactory appliance performance.
13. Sloppy installations.
14. Unsafe trade practices.
15. Accidents.
16. Higher insurance rates.
17. License required to be in the gas business.
18. Written examinations required to obtain licenses.
19. Employment of licensed employees required.
20. Subjection to trade unions.
21. Weakening of your competitive position.
22. Ill will and distrust within the gas business.
23. Loss of the trust of the buying public.
24. Furnishing the electric industry with excellent arguments why gas should not be used.

Are these sufficient arguments for the desirability of a code of ethics within the gas business? Are the headaches which are otherwise involved worth the questionable freedom of unrestricted, unprincipled enterprise? Without resort to arguments as to the right and wrong of the industry policing itself, can there be any doubt as to the material advantages of our being ethical?

Granted that there is need of a code of ethics in this business, what should it be? I am going so far as to set down in writing those principles which I believe will pay dividends.

1. I will not solicit the customers of my associates in the gas business.
2. If his customers come to me dissatisfied, I will try to get them to remain with him by extolling his good points.
3. I will let him know if I hear of any dissatisfaction on the part of his customers and give him a chance to straighten out his difficulties with them.
4. If he cannot straighten out his difficulties with them I still will not take them on as my customers until I find out whether or not they owe him any money. I will not take them on as my customers until they have settled their indebtedness to him in full.



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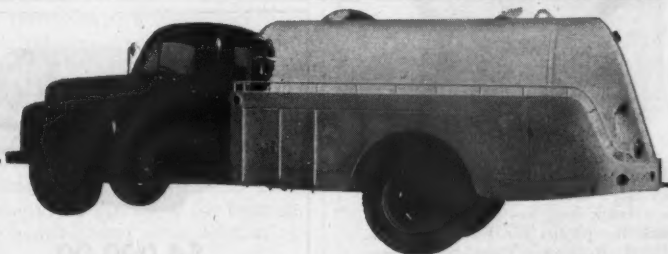
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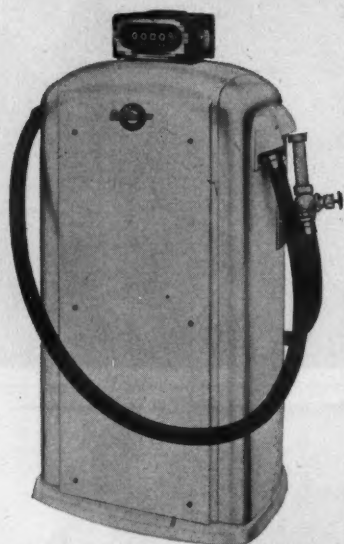
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5. I will not make any free gas installations for, or offer any inducements to, any competitor's customers that I do not regularly make to my own customers.
6. I will not cut the price of gas in order to get any of my competitor's gas customers.
7. I will not be a party to any deceptive or dishonest trade practice.
8. I will not be a party to any installation practice that decreases the operating qualities of any appliance or that creates any hazard.
9. I will not knock my competitor or his products in order to make sales.
10. I will not fill the cylinders or other containers owned or controlled by my competitor without first obtaining his permission.
11. If my competitor is in trouble due to causes beyond his control, I will do my best to help him if, in so doing, I do not jeopardize or injure my own business.

12. I will not accuse my competitor of any unfair trade practice until I have absolute proof of it, and even then I will try to get him to rectify the condition before I resolve to take any retaliatory action.

13. I will try to treat my competitor as I would like to be treated by him.

Idealistic? Not a bit of it; just common sense. Impractical? There are sections of this country in which such a code does already exist. It works, the gas distributors are happy with it, and it is a significant fact that in the territory where it exists there is a minimum of friction between gas distributors, and the profit factor is the highest of any district in the nation.

Don't Crowd

There is room enough for all us in the gas business without treading on each other's toes. There are hundreds of thousands of American homes where wood, coal and oil are still used as cooking fuels. Even more hundreds of thousands of homes do not have the convenience of automatic gas-fired water heating. You would be surprised if you knew how many of them do not have any means of refrigeration. Thousands of them still use archaic wood, coal or oil stoves for space heating.

If anyone has told you that all electric users are satisfied users, don't you believe it. There would scarcely be an electric range user today if we hadn't fallen down on the job by selling inferior gas appliances, or if we had not failed to properly service gas ranges and instruct our customers in their operation.

When over 90% of the commercial eating establishments continue to use gas as a cooking fuel in spite of the blandishments of the electric industry, there must be something to this cooking-by-gas business, and every electric range that is installed in an American home is an indictment of ourselves and our operative inefficiencies.

With this bountiful crop of prospects waiting to be harvested, why stoop to brigandry among ourselves? We had best forget our petty jealousies, and organize, just as the electric industry has done. Our first step in that direction is observation of a code of ethics among ourselves.



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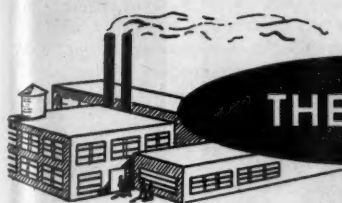
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Batesville, Arkansas



THE TRADE



Andrew F. Cassidy has been appointed general sales manager for *Rheem Manufacturing Co.*, it is announced by C. V. Coons, vice president and general manager. Mr. Cassidy joined the company upon his release from military service in 1945 and for the past four years has been sales manager of water heaters and boilers. In addition to these products, Rheem manufactures warm air furnaces, water softeners and gas ranges.



A. F. Cassidy

Prior to his army service, Mr. Cassidy was associated with the Gas Appliance Manufacturers Association as manager of its Washington office.

James M. White has been elected vice president in charge of manufacturing of the *American Car and*

Foundry Co. This announcement by Charles J. Hardy, Jr., president, coincides with the retirement of Robert W. Ward, vice president, after 42 years of service with ACF, whom Mr. White succeeds.

Mr. White will have over-all responsibility to determine and control manufacturing and related operations at all locations of the company. He will maintain headquarters at ACF's general offices at 30 Church Street, New York.

Appointment of J. French Robinson to the board of directors of *Affiliated Gas Equipment, Inc.*, has been announced by Lyle C. Harvey, president of AGE.

Mr. Robinson is a major figure in the gas industry and a past president of the American Gas Association. In 1951 he was elected president of Consolidated Natural Gas Co. of New York and chairman of the board of East Ohio Gas Co.

Affiliated Gas Equipment, Inc., manufactures appliances for heating, water heating, and air conditioning.



This tank transport of the Basin Petroleum Co., Durango, Colo., has a capacity of 6500 gallons. Owners R. L. Beers, Carl Heidt and T. A. Mulvehill ordered it specially constructed without skirting from the Lubbock Machine & Supply Co., Inc., in order to increase the payload. The manufacturer estimates that the capacity could have been increased another 900 to 1000 gallons without violating the weights and measurement specifications of the Colorado or New Mexico highway departments.

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M. J. Harper



H. Gottwald

L. A. Dixon, Jr., vice president of the meter and valve division of Rockwell Manufacturing Co., has announced the appointment of M. J. Harper as vice president and H. Gottwald as Eastern regional manager of sales and district manager of New York district office.

Mr. Harper has been in the meter and valve division of the company for over 30 years as district manager of the New York office, and until his new appointment, he was regional manager of the Eastern region, coordinating the activities of the Boston, New York and Philadelphia offices.

Mr. Harper in his new capacity will be working on special assignments and will headquarter in New York City.

Mr. Gottwald joined Rockwell in 1928 as a sales engineer in the New York district. He then became assistant vice president of Rockwell International Division, and in that capacity traveled extensively throughout all of the Eastern hemisphere, handling all meter and valve products of the company. Later he became assistant sales manager of the Nordstrom Valve Division of Rockwell and then assistant vice president of this division.

For the past two years Mr. Gottwald has been general sales manager for the Nordstrom valve division. His new assignment will call for coordination of sales activities of the Boston, New York and Philadelphia district offices.

Donald P. Shafer has been named manager of the Columbus, Ohio, branch office of General Controls Co., according to J. F. Ray, vice president in charge of sales for the company, manufacturer of automatic pressure, temperature, level and flow controls for home and industry.

Mr. Shafer's duties with General Controls include the handling of sales, engineering and service on the company's extensive line of automatic controls through the area near Columbus. Headquarters of the Columbus operation are at 81 E. State St.

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T. V. Scott, sales manager of The Weatherhead Co.'s L. P. gas equipment division, has announced the appointment of three new sales representatives for important areas in the East Central region of the United States. They are Lester (Les) Browne, A. T. (Al) Rider, and G. M. (Glenn) Downs.

Les Browne will manage the Albany, N. Y., warehouse and will cover eastern New York, Connecticut, Rhode Island, Massachusetts, Maine, New Hampshire, and Vermont. Al Rider has been assigned to western New York and western Pennsylvania, West Virginia, Kentucky, and Ohio. Glenn Downs' territory will include the states of Indiana, Illinois, and Michigan.

C. S. Davis, Jr., president of Norge Heat Division, Borg-Warner Corp., Kalamazoo, Mich., has announced the appointment of W. C. "Bill" Walter as general sales manager.

Mr. Walter has been associated with Norge Heat for more than six years. He formerly was Western regional manager covering the Rocky Mountain states as well as the West Coast, with headquarters in Los Angeles.

The U. S. Machine Corp., Lebanon, Ind., became Division 6 of Stewart-Warner Corp. in January, states J. S. Knowlson, board chairman and president of Stewart-Warner.

Acquisition of U. S. Machine was declared by Mr. Knowlson to be Stewart-Warner's first major step in its intention to gain a major position in the home heating industry.

William E. Judd, general sales manager of the "South Wind" heating equipment division, Indianapolis, since 1949, has been appointed assistant to James S. Knowlson, president and board chairman of Stewart-Warner Corp.

His appointment fills the vacancy created by the appointment of Leonard L. Robb to another company division. William V. Ryan will hereafter be general sales manager of the company.

Pierre (Pete) Chabre, recently returned from 14 months in Korea, has been appointed sales manager of the Gaffers & Sattler and Occidental Stove companies, divisions of Utility Appliance Corp., it is announced by Maurice Breslow, executive vice president of the corporation.

Mr. Chabre has been with the appliance firm for 16 years.

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Enjoy more sales—more satisfied customers

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MODEL 7325

Standard cylinder truck shown at left is available with size 10 x 2.75 tires in two types.

Air Tires.....	\$19.25
Semi-pneumatic	\$18.20

Truck at right is equipped with size 10 x 3.50 General tires having separate inner-tubes.

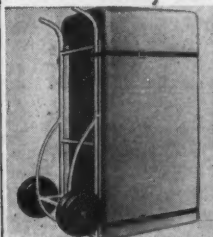
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MODEL 7325-G

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Trucks also available for handling large 400 pound bulk cylinder. Write for illustrated literature and prices.



★ ★ ★
Appliance Truck
Model 229



Pneumatics are featured on M/W trucks.

The safe, sure way to move heavy appliances. Large 12" air tires prevent damage to linoleum or varnished floors. Truck provides safe way to move heavy appliances up or down stairs. Price with two 12 ft. web straps \$47.60

ALL TRUCKS MFG. BY

Moellenbrock & Wilke

WASHINGTON, MISSOURI

Send An Issue of the New Size
BUTANE-PROPANE News
 To Each of Your Friends - - -

...Without Charge

THE continuing growth of BUTANE-PROPANE News has been largely influenced by the loyalty of subscribers who not only recommend it to their friends, but who encourage them to become *regular* readers.

Would you serve as a "jury" of one and list the names and addresses of your friends and associates whom you think will be most interested in BPN's coverage of the LP gas industry? The men with whom you discuss LPG problems, or to whom you "pass-on" your copies of BUTANE-PROPANE News are the most logical readers.

In turn, we will send a copy of this issue to those men on your list who are not regular subscribers — *without charge and with your compliments*. The quantity available for this purpose is limited. Please do it today.

THE EDITORS

BUTANE-PROPANE News
 198 South Alvarado Street
 Los Angeles 4, California

Please send a free copy of the new size BUTANE-PROPANE News with my compliments to each of the persons listed below:

TO.....

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TO.....

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TO.....

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TO.....

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TO.....

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TO.....

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● SENDER.....

FIRM.....

ADDRESS.....



C. J. Bender, president of Trinity Steel Co., of Dallas, Texas, is talking over expansion plans for 1953 with Ray Wallace (right) secretary-treasurer of the company. Plans include expansion of plant facilities for manufacturing the Trinity transport, truck, and domestic tanks for LPG and anhydrous ammonia.

The Soto Welding & Manufacturing Co., 1708 S. Soto St., Los Angeles, has been purchased by George Berri Co. but will be operated under its existing name.

Mr. Berri, until recently, has been associated with the Illinois Central R.R. He also owns the General Tank Co., Inc., which manufactures water tanks. He is a U.S.C. graduate.

Frank Culver, long identified with LPG equipment sales on the Pacific Coast, died in Seattle Feb. 5.

From 1940 to 1943 he was with L. C. Roney Co., of Los Angeles, and later established himself as manufacturers' agent for a number of lines in the Pacific Northwest.

Evidence of a good advertising mind at work is found in the ad created by "Smoky" Billue, *Security Underground Storage Co., Wichita Falls, Texas*. A small cutout, bright red in color and in the shape of "red flannel" underwear, is mailed or handed to prospective customers. On one side is printed the challenging line "Be Prepared for Winter!" The reverse side of the cutout reads, "Don't be caught with your plants down next summer—store your LPG underground."

The Rasch Manufacturing Corp., a Missouri corporation, has acquired certain assets of the Security Manufacturing Division of The Kemper Investment Co. and will actively engage in the production and sale of gas-fired appliances.

At the first directors' meeting the following officers were elected: William T. Rasch, formerly president of the Security Manufacturing Co., will

be president of the new firm. Lee W. Rasch, formerly vice president of Security, will be vice president and treasurer.

Fred Bellemere, Sr., will be secretary and general counsel.

In addition to the officers, Berl Berry, Morris S. Fogel, Harry D. Rice and Lewis A. Mears were appointed directors.

James R. Scherrer, Jr., formerly chief engineer with the Security Manufacturing Co., will have the same position with the Rasch organization, and also he will be a sales representative.

The new company has acquired the trademark "Security" and will merchandise and manufacture water heaters, conversion burners, furnaces, floor furnaces and other appliances under this trade name.

A greatly enlarged and broadened operation is planned for the new corporation with practically all types of gas appliances being manufactured and sold nationally.

The plant location is at 1630 Oakland Ave., Kansas City, Mo., which is the same location as occupied by Security Manufacturing Co.

Richard Meisenbach has been named manager of sales of L. P. gas and anhydrous ammonia systems at The J. B. Beaird Co., Shreveport, La., according to an announcement by J. L. Tullis, general manager of sales. He formerly headed Beaird's special products division and has been active in the development of new products for handling and storing LPG and anhydrous ammonia.



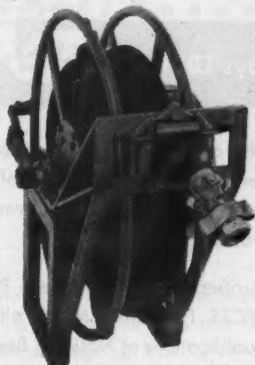
R. Meisenbach

Other Beaird appointments include:

J. H. Johansen, who has been named sales representative in Minnesota, Wisconsin and northern Michigan. He was formerly a distributor of L. P. gas in Hennepin county in Minnesota. Prior to that he was district manager of a gas company in Minneapolis.

Bert Newton has been named sales representative in Florida. He has been associated with the gas business

ACE HOSE REEL for Butane or Propane



• SPRING HOSE REEL

ACE HOSE REELS save time, save money. Engineered to handle up to 50' of 1" material the ACE SPRING OPERATED HOSE REEL assures satisfactory performance. All pipe fittings are heavy duty steel and a chicken ball bearing swing joint is a component part of reel.

ACE HOSE REEL CO.

5466 Alhambra Ave.
Los Angeles 32, California

OVERNIGHT SERVICE PLUS QUALITY



REGO LP GAS EQUIPMENT

- Rochester Criterion Gauges
- Hose and Fittings
- Weco-Trol (Automatic control)
- ICC Cylinders
- Okadee Valves
- Brunner LP Gas Compressors
- Liquid Pumps



DISTRIBUTOR DEALERS

IF YOU OPERATE IN A "HARD WATER" AREA YOU CAN DOUBLE YOUR BUSINESS BY ADDING FILTER-SOFT—A NEW METHOD OF CONVERTING HARD WATER INTO SOFT. SERVICING FILTER-SOFT, ALONG WITH BOTTLED GAS IS A NATURAL.

Get a

Filter-Soft WATER

Franchise



You have the set-up and dealers—all you need are softeners and inexpensive regenerating equipment. We furnish everything—simple installing instructions and a selling program to give your dealers.

Territory being allotted daily.
Write now for interesting details.

FILTER-SOFT Corporation

Dept. BPN
12911 ARTESIAN AVE., DETROIT 23, MICH.

There Are Extra Profits In Your Area!

Many industrial natural gas users in your area faced with gas curtailment are a source of hidden profits for you. Hundreds of thousands of domestic users have been added to natural gas systems and now have claim on available gas supplies. Industrial users, therefore, need standby plants more than ever.

If you know of any such problems in your area, inquire into the DRAKETOWN liberal co-operative plan for dealers and distributors.



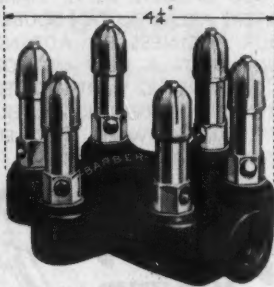
Your Assurance of a Good Job

Serving utility and industry
for over thirty years.

DRAKE & TOWNSEND

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11 WEST 42ND STREET • NEW YORK 36, N. Y.

BARBER BURNERS



No. C-40 Barber Burner

DESIGNED FOR SERVICE, EFFICIENCY AND TROUBLE-FREE PERFORMANCE

Every Barber unit bears the stamp of Barber know-how — 35 years of experience, expert craftsmanship, quality production. Barber engineers create and build the exact type and size of burner to fit any gas appliance, using natural, manufactured, Butane or bottled gas.

Write For Complete Catalog

A LEADER FOR MORE THAN
35 YEARS

the Barber Gas Burner Co.

3682 Superior Avenue Cleveland 14, Ohio



REGO LP GAS EQUIPMENT

- Rochester Criterion Gauges
- Hose and Fittings
- Weco-Trol (Automatic control)
- ICC Cylinders
- Okadee Valves



Mallinckrodt
**ETHYL
MERCAPTAN**
purified

it says LOOK OUT



- The accepted standard odorant for natural or liquefied petroleum gas — gives sure but harmless warning.

- Purified — Moisture-free — PROTECTS FIXTURES. Meets all 15 qualifications of National Bureau of Standards.



MALLINCKRODT CHEMICAL WORKS
Mallinckrodt St., St. Louis 7, Mo.
72 Gold St., New York 8, New York

WILL YOU STILL BE IN BUSINESS Five Years from Now?

Averages prove many of you will fail! The successful L P gas dealer is the far sighted dealer. To succeed, you must think in terms of your customer — recommend to him those items which will give him better performance, greater economy, complete safety.

Your Customers Need And READILY Buy the KRUG HAND PUMP

- For Economy • For Safety

You have an unwritten obligation to your customer to give him the maximum economy and finest workmanship. Recommend the Krug Hand Pump for his L P transfer system. Avoid dangerous and costly venting methods. The easy-to-operate Krug Pump offers complete safety at minimum cost. Actual tests prove it will pay for itself. Simple construction — long life — cannot vaporlock! Stock and show the Krug Pump regularly. You'll please your customers, while making a profit for yourself.

Listed by Underwriters' Laboratories, Inc.

INVESTIGATE THIS
PROFITABLE OPPORTUNITY

SEE YOUR DISTRIBUTOR FOR FULL INFORMATION
OR SEND A POSTCARD TO
D. H. KRUG COMPANY
DEPT. 50, MADISON, SOUTH DAKOTA

since 1935, formerly as vice president and general manager in Tampa for Associated Gas of Florida, and later as manager and partner in Gulf Propane Co., in the same city. Prior to World War II he was engaged in the gas business in his home state of North Carolina.

Theodore L. Pantz has been named vice president in charge of manufacturing at *Servel, Inc.*, states W. Paul Jones, president of the company.

Previously, Mr. Pantz was works manager of the Seeger Refrigerator Co.'s Evansville plant; superintendent of tools, maintenance and processing for the Frigidaire Division of General Motors; development engineer for the Point Breeze, Md., plant of Western Electric Co.; and chief engineer for P. Sorenson Manufacturing Co.

The retirement last month of W. E. Baker, vice president and assistant to the president of *Servel, Inc.*, was announced recently by the company.

Mr. Baker joined *Servel* in 1934 as vice president in charge of manufacturing. He continued as the company's production chief until 1951, when he was appointed vice president and assistant to the president.

Appointment of O. J. Ress as chief engineer and N. E. Hill as manager of product engineering has been announced by the *L. J. Mueller Furnace Co.*, Milwaukee, manufacturers of Mueller "Climatrol" heating and air conditioning equipment.

Mr. Ress, formerly research director, fills the post vacated by F. J. Nunlist, Jr., who advanced to general sales manager some time ago. He will be responsible for general supervision of all product engineering activities including design and testing, application, field service engineering and the like.

Formation of a sales engineering department, headed by R. W. Weekes, has also been announced. The new department is intended to meet all problems arising in its field of operation, and to promote sales.

E. C. Prince, sales manager for *Superior Propane Limited*, Toronto, Canada, announces that Jack Hayes has been appointed district manager for the company's Stratford area.

Mr. Hayes will be responsible for all western Ontario territory. His office will be at *Superior Propane's* Stratford plant, Monteith Street. A branch is maintained at Guelph, with agencies at Sarnia, Walkerton, Brantford, Tillsonburg, and Dutton.

Small Brass Plug Seals Gas Cylinder

H. M. Bassett

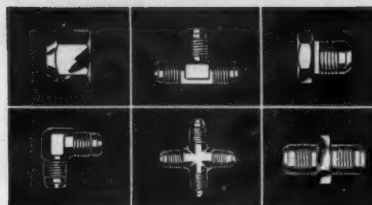
A little brass plug developed by William Lennon of Housatonic, Mass., in conjunction with Charles Brewer, father of "free wheeling" and other automotive improvements, is expected to be of interest to the bottled gas industry. The plug locks and seals a cylinder of bottled gas so that it can be opened only with a special key wrench after the seal is broken. One advantage is that a customer may be sure that he is getting a full tank of gas.

Fits Bottled Gas Valve

The gadget is smaller than an ordinary house fuse and fits into the outlet of any bottled gas valve. Even if the main valve is accidentally jarred open it prevents the gas from escaping. At present there is no locking plug of this type on the market. The plugs now in use can be opened by anyone with an ordinary wrench. They are also so large that they will not allow the protective cap to be screwed back on the cylinder head when the tank is idle. Without the cap the valve can be accidentally broken, permitting the gas to escape.

The basic idea of the invention came to Mr. Lennon two years ago. He is the proprietor of the Housatonic Gas Co. and also a distributor for the Home Gas Corp. in that village. Each fall he visits the summer homes and camps in that vicinity and removes the tanks of bottled gas. The cylinder is weighed and a rebate sent to the customer for the remaining gas in the tank. In the spring Mr. Lennon installs a new tank of gas before the owner returns. He had thought hard about a locking plug that would enable him to leave the tanks on location all year round. In his 15 years in the gas business he had not seen any that were satisfactory. After much study and some experiments he talked over a few ideas with a patent attorney and Mr. Brewer.

Mr. Brewer had become much interested in Mr. Lennon's ideas, and with one of his basic models to work upon, came across with the present plug. The new gadget had all of the features that Mr. Lennon was looking for—to lock the cylinder safely against tampering or accidental opening of the valve. The plug is made of solid brass but it has a rupturable rim that breaks off if anyone attempts to open it with an ordinary wrench. Several holes are in the rim



QUALITY.....

a tradition

with

**Madden
Brass
Fittings**

For the "tops" in quality, use Madden brass fittings on LP Gas and other industrial applications. They are precision-machined of highest quality material. It costs so little to have the best... Madden.

WRITE FOR COMPLETE CATALOG C-3

MADDEN BRASS PRODUCTS CO.
3111 N. FRANKLIN ST. CHICAGO 10, ILL.

BURNHAM LPG TANKS

17 standard systems from 115 to 1,000 gallons—center and end-mount styles. The quality, safety, and service built into these tanks are second to none. Shipped moisture-free. Registered with National Board.

Burnham Corporation
TANK DIVISION
IRVINGTON, NEW YORK



Nope. You won't need pump packing if you have the new, leak-proof, mechanically sealed Corken LPG Pump. But if you have an old type pump, we still have the packing.

"Corkenpak" is a specially compounded and moulded plastic, non-porous; Propane can't go through it. No lubrication needed. Will keep a Viking, Peerless, Invader free from leaks longer than any packing you ever used. (And it costs less). Just give us the name and model of your pump.

A PAIR OF THESE MAY HELP:
Pulling packing out is safer than blowing it out. Use a pair of Corken Flexhooks—No. 1 size for small shaft pumps, pair, \$2.50. No. 2 for large pumps, pair, \$3.00.



CORKEN'S inc

208 E-Grand - Oklahoma City, Okla.

ARMSTRONG

Presents

ANOTHER HEATER HIT



A RADIANT CIRCULATOR For Natural or LP Gas

Model 5200 is fully vented, AGA approved. It has built-in draft diverters, completely enclosed combustion chambers. Pyrex brand glass panels in front. Pressure regulator, manually operated pilot burner. Finished in brown porcelain enamel. 30" high. 4 or 5 radiants. 20,000 or 30,000 B.T.U.

Order from your Jobber or write for literature on complete heater line.



ARMSTRONG PRODUCTS CORP.
Quality Since 1899
Dept. R.P. Huntington 12, W. Va.

An Efficient Specialized Service for the

LP-Gas Industry

One of the Midwest's
Finest Stocks of

Brass Fittings

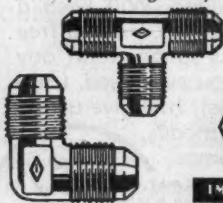
Copper Tubing

Tools for Tubing

Valves and Cocks

Orifices and Kits

Prompt Shipment
Write for catalog and full details



Quality
PRODUCTS



IRVING, KANSAS

NATIONAL
Service

through which can be threaded a wire clamped together with a special metal seal, the seal to be imprinted with the firm name and to indicate that the cylinder has not been opened.

The entire plug will probably sell for less than 50 cents. According to present plans, the plug will be inserted when the tank leaves the bulk plant. It may be removed by the distributor when he installs the new tank, and placed in the empty cylinder that goes back to the plant. It has the additional advantage of keeping the empty tank from drawing in moisture and exhaling fumes in transit. The new plug is known as the "B and L Sealshipt Nugget." It has not yet gone into full production. Arrangements are being made in four shops in Connecticut and one local firm for heavy production in the near future. Mr. Brewer is in charge of the manufacturing end, Mr. Lennon the advertising and publicity. A corporation will be formed.

Two-Way Radio Service Speeds Deliveries by 90%

R. G. Ford, owner of a tank and butane company in Marshall, Texas, estimates that his new two-way radio communication system has speeded butane deliveries to his customers by as much as 90%. Company drivers anywhere within a 50-mile radius of Harrison county, Texas, keep in constant radio communication with the office, where a 120-foot radio antenna has been installed. Some deliveries are made within seconds after the order is placed.

One customer who telephoned during a cold spell had a truck pumping butane into his empty tank within 45 seconds. Another customer dropped into the office to give his order in person. A delivery truck was at his house before he left the office. Deliveries are also speeded by the immediate dispatching of repair mechanics to any truck that runs into trouble on the road.

Classified

PROFESSIONAL SERVICES

LET MY LP EXPERIENCE WITH OVER 100 operating properties increase your profits. Floyd F. Campbell, Management and Sales Consultant, 1495 Forest View Drive, St. Louis 22, Missouri.

INDIVIDUALLY DESIGNED BULK PLANTS

H. Emerson Thomas
& Assoc., Inc.
Westfield, N. J.

PAUL SAYS...

"If you want to save money
let us quote you on your
L.P.G. needs."

WE GUARANTEE all equipment advertised to be new unless otherwise specified. Write for pictures and literature.

We Trade — We Finance

4046 WG PROPANE TRANSPORT
Used Propane 4046 WG twin transport, 200 WP, twin tank, streamlined skirting, tire rack, tool box, 10.00x20 good tires, ready to go.....\$4450.00 FOB, Liberal, Kansas

BRAND NEW 1953 DODGE
118 H.P. engine, 5 speed transmission, 8.25 x20 tires, 1370 twin tanks, pump, shafting, piping to do any job, clearance lights and reflectors, 50 ft. 3/4-inch hose.
Federal tax, immediate delivery.....\$3845.00
You can't say we aren't right on this price.
White Paint additional.....\$30.00

1951 F6 FORD
1951-F6-Ford 2 speed axle, 8.25x20 tires, new equipment including 1430 WG twin Propane Tank 250# WP, pump, shafting, piping, hose, lights, reflectors, white paint, ready to deliver gas.
Federal tax included.....\$3268.00
Neptune Standard meter installed additional.....\$308.00

1460 TWIN DELIVERY TANKS
U69, 1950 Code 250# WP, complete with tank fittings, prime painted, plain skirting with built-in tool box. These tanks can be shipped anywhere by truck or train. Do your own installing and save, or we will mount on truck. Immediate delivery.....\$1270.00
Custom fuel tank built in between tanks, additional.....\$62.50

Viking Pump w/Mech. Seal KK190.....	\$106.70
*Dix Vaporizer and Adapter.....	52.50
1952 - 1953	
*Carburetor Adapters for Olds - Cads	17.50
*Remote Fuel Gauge, dash mounting.....	15.00
*Borg-Warner L.P.G. carburetion catalog FREE	
14x33 Custom Fuel Tanks - for cars.....	59.89
*L.P.G. Pump Grease 1 1/4# can (stops leaks).....	3.25
Bright Aluminum Paint, per gal.....	3.25
*Jenkins 1/2-in. L.P.G. Valves.....	4.40
*1/2-in. Rego 2554 Valve.....	5.13
*Carburetion Manuals B & P.....	3.50
Fairbanks-Morris Scale #1280.....	56.87
*Hastings L.P.G. Spark Plugs 1.25.....	.75
*Carburetion Vacuum Hose, 3/4"x15".....	.60
*1-300 Pressure Gauge 3/4-in. I. P. T.	1.55
Tractor Hose 10 ft. 3/4-in. w/fittings.....	12.70
*J & S Single Load Adjusting Blocks.....	2.50
*Hi-Pressure Hose 3/4"x4 ft. w/fittings.....	1.00
*Electro L.P.G. & Gasoline Analyzer.....	69.25
*Same with carrying case.....	79.25
*Same with Vacuum Gauge and Can.....	85.00
*Compression Meter.....	11.00
*Tachometer (primary).....	63.25
*Tachometer (secondary) w/case.....	82.50
*2-in. Line Strainer.....	24.50
*Cold Manifolds for most engines.....	40.00
*Hi Compression 8 1/2' head 1948-51 Dodge	40.00
*Hi Frequency Ignition System 37.50.....	22.50
*Rockwood 2-in. Valve.....	27.15
Johnson Stock Tank Heater, normal.....	35.60
Same, automatic.....	60.10
Woods Brooder 500.....	37.31

*Denotes items that are freight prepaid if check is sent with order, or if credit has been approved.

Paul L. Maxwell
SOUTHWEST GAS EQUIPMENT CO.
Liberal, Kansas

DOMESTIC BUTANE-PROPANE TANKS

For homes, trailers, trucks and etc. Horizontal or vertical. With or without visible gauges, guards and legs. Sizes from 6" x 14 1/2" to 42" x 16'9". Net capacity 1 1/2 gals. to 1000 gals. ASME code.

SOTO Welding & Mfg. COMPANY

1708 SOUTH SOTO STREET
LOS ANGELES 23, CALIF.

Classified

HELP WANTED

SALESMEN NOW CONTACTING L.P. gas distributors, cylinder and tank manufacturers to handle major line of equipment by a leading manufacturer. A number of good territories are still open. Write Box 900, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, Calif.

WANTED—EXPERIENCED SALES REPRESENTATIVES. We have openings for aggressive sales representatives with experience in sale of LP-gas and anhydrous ammonia systems. Openings in Middle West or Middle Southeast. State experience and full information in application to: General Manager of Sales, The J. B. Beard Company, Inc., P. O. Box 1115, Shreveport, Louisiana.

ENGINEER

RESEARCH AND PROJECT DEVELOPMENT program. Progressive, well-established manufacturer of valves, fittings and accessories serving the refrigeration and air conditioning, liquefied petroleum gas and high-pressure gas industries, requires graduate mechanical or chemical engineer with experience, initiative and imagination, to conduct research and develop new products in present or related lines of manufacture. Pleasant, diversified, interesting work. Write complete information concerning education, experience, salary expected and references. Mr. Fullerton, Superior Valve and Fittings Company, 1509 West Liberty Avenue, Pittsburgh 26, Pennsylvania.

SITUATIONS WANTED

MAN 15 YEARS EXPERIENCED MANAGER of bulk plant, installation, sales, and service of domestic and commercial equipment. Could assume full responsibility. Box 130, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

MAN WITH MANY YEARS GAS EXPERIENCE must move family to different climate. Excellent on service. Can give references. Box 135, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

BUSINESS OPPORTUNITIES OFFERED

DISTRIBUTOR WANTED FOR GOING bulk propane business in Eastern Oregon. Investment required in tank truck, pick-up and inventory. Plant and show room well located and growing rapidly. Applicant must be experienced. Write Box 115, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

RETAIL BOTTLE AND BULK PLANT, priced to sell; located in the heart of the fast-growing uranium district of southwestern Colorado. This rapidly increasing business, which is only two years old, has a present annual volume of approximately 200,000 gallons. Write Box 150, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

PROPANE CYLINDER BUSINESS WITH 1200 accounts in franchised Western Pacific territory. Profitable and growing with large industrial potential. \$30,000 on terms. Box 155, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

RETIRED OWNER WILL SELL ONE OF the best small propane businesses in middle west. Bulk and bottle. Cylinders leased. No union labor. Bulk tank, truck, pick-ups and a real money-making business. Buyer must have at least \$15,000.00. Send evidence with inquiry. Box 160, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

BUSINESS OPPOR. OFFERED - Cont.

FOR SALE: CHANCE OF A LIFETIME to somebody with proven ability to buy a going business with ability rather than cash. Concern has 1500 bulk customers and 500 bottle customers. Doing a gross business of \$285,000 a year. Right party can step in, take over majority interest and pay for same on earnings over a 10 year period. Give full particulars on background and ability for an interview. Owner retiring. Box 145, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

FOR SALE: LPG BUSINESS COMPLETE, three branches, three tank trucks, three pickups. Around \$150,000.00 per year gross sales, growing each year. \$100,000.00 plus inventory. Terms available. Call or write Knu-Gas Company, Nampa, Idaho.

BUSINESS OPPORTUNITIES WANTED

WANTED TO BUY

Privately owned L.P.-Gas business. 500 to 2,000 customers in Ohio, Pennsylvania, Indiana or Kentucky. Wholesale business preferred. Write Box 333, Barnesville, Ohio.

FOR SALE — TRUCKS AND TRAILERS

PROPANE DELIVERY TRUCK FOR sale. 1951 International L-150, single speed axle, 825 rear tires, excellent condition with 26,000 miles equipped with BRAND NEW 1250 W.G. twin propane tank, \$2,395.00. Can install pump, meter and pipe to your specifications for additional \$375.00 to \$475.00, depending on equipment you want. White River Distributors, Inc., Batesville, Ark.

BRAND NEW 600 W.G. SINGLE PROPANE tank mounted on 1951 Int. 1 ton, dual wheel truck with only 25,000 miles, excellent condition, \$1,995.00. Can pipe to your specifications for additional charge. White River Distributors, Inc., Batesville, Ark.

ONE FORD 2 TON 1947, 8:25 TIRES, with 1000 gallon propane tank, Brodie meter, and Granco propane pump for \$1500.00. Cullman Butane Gas Co., Cullman, Alabama.

NEED A WORKHORSE? WE HAVE NEW 353 GMCs 2 ton 2 speed w/8:25 tires complete with 1500 WG twin Nor-Tex Unit consisting of the new 55 GPM Peerless Pump w/mechanical seal and O rings, Neptune Print-O-Meter enclosed in meter box, fuel tank, plumbed, skirted, tax paid, filler hose, white enamel and lettered. \$4684.50 F.O.B. North Texas Tank Co., Phone Central 4516, Denton, Texas.

FOR SALE: U69 TWIN BARREL DELIV- ery truck mounted on 1950 Cabover F6 Ford, each barrel 710 water gallons. Contact Salmon Butane Gas Co., Summerville, Georgia, for particulars.

SEE US BEFORE YOU BUY A PROPANE delivery truck. WE SAVE YOU MONEY. Your choice of 1953 International, Chev., Ford, G.M.C. or Dodge trucks with any size single or twin tanks, 600 gal. to 1800 gal. with any make pump, meter or carburetion. We can refer you to hundreds of satisfied customers who have bought our trucks. IMMEDIATE DELIVERY. White River Distributors, Inc., Phone 570, Batesville, Ark.

FOR SALE: 1950 DIAMOND T. TRANS- port, 1700 W.G. capacity, Neptune Print-O-Meter, new tires, recent motor overhaul. \$3650.00. Oatman Bottled Gas Co., Versailles, Indiana.

FOR SALE—TRUCKS & TRAILERS-Cont.

BRAND NEW 1½ TON CHEV., 825 REAR tires with new 1250 W.G. tank, \$2,995.00. Your choice of Invader, Roper, Corken, Viking, Smith pump, meter, piped complete at additional charge. This price is special and is \$500.00 under regular price. White River Distributors, Inc., Batesville, Ark.

5000 WATER GALLON PROPANE TRANS- port for sale. Twin tanks, tandem axle, 10:10 x 20 tires. Nichols Truck Line, Duncan, Oklahoma.

FOR SALE — TANKS AND CYLINDERS

FOR SALE—NEW 18,000 W.G. PROPANE Tanks, New 30,000 W.G. Propane Tanks. Shipped from Nebraska. March delivery. All tanks 200# W.P. U-69 with or without fittings, ladder, platform, visual or rotary gauge. Write or wire Keith Kugler, Manufacturer, Culbertson, Nebraska.

CYLINDERS ICC, 4B240. BRAND NEW. 100 lbs. capacity, TW 70 lbs. \$13.95, valve extra. Also 20 lb. capacity with Rego valve complete, \$9.45. Lower prices for large quantity orders. A complete stock of regulators and fittings for immediate shipment. F. O. B. Cleveland, Ohio. Home Gas Equipment Co., 1301 Carnegie Ave., Cleveland 15, Ohio.

THIS IS THE "CONVENTION SPECIAL" —New 1953 Reo F-20B Reo Gold Comet Chassis, 8:25 rear, 7:50 front, completely equipped with 1250 WG Nor-Tex Twin Tanks, skirted, plumbed, fuel tank, KK190 Viking Pump (with mechanical seal), 50' filler hose, excise tax paid, ICC lights, power take-off w/spline jack shaft, aluminum paint over red oxide. Ready to go at \$3950.00 F.O.B. Denton. Meter, LPG carburetion, meter box, etc., extra at reasonable prices. Why don't you write, wire or phone, Nor-Tex Products Co., Box 775, Phone Central 5416, Denton, Texas.

IMMEDIATE DELIVERY. NEW 1953 2 ton 2 speed Chevrolet or F6 Ford with 1400 WG twin Nor-Tex tanks equipped with 50 GPM mechanical seal Corken pump, fuel tank, filler hose, Pittsburgh reset meter, Hannay hose reel, 20# extinguisher, white enamel, Ensign LPG carburetion and enough propane to get home. F.O.B. North Texas Tank Company, Box 519, Phone Central 5416, Denton, Texas. \$4500.00.

FOR SALE: 2000 I.C.C. 240-B 100# CYLIN- ders re-tested for 12 year service. Perfect condition. \$13.50 f.o.b. Denver. Box 140, BUTANE-PROPANE News, 198 So. Alvarado, Los Angeles, California.

AT DEPRECIATED PRICE, 1400—60#— 4B240 Pressed Steel Tank Company cylinders. City Gas Service, Inc., Wisconsin Rapids, Wisconsin.

FOR SALE—2 - 6000 GALLON U-69 MADE 1950 propane storage tanks. 1 - N245 Davis Vaporizer 500 gal. per hr. capacity. Used 6 months. R. H. Stinger, Box 227, Durand, Michigan. Phone 477.

FOR SALE—MISCELLANEOUS

195 SERVEL GAS REFRIGERATORS, G410, J410, K410 — 4 cu. ft. Used, perfect operating condition—direct from apartment house. Clean, attractive, complete. \$11.50 each for entire lot. \$12.50 each for 65 (1 trailer load). Low delivery cost anywhere. Call, write or wire. BEACH REFRIGERATOR CO., 196-11 Northern Blvd., Flushing 58, New York City. Phone FLushing 7-6161.

FOR SALE—MISCELLANEOUS - Cont.

THE CITY OF MARFA, TEXAS IS LISTING as surplus the following equipment from its gas plant in Marfa:

ITEM 1. One Worthington horizontal type air compressor - Size 10x5 Serial #L44772 complete with Model 25-D Manzel force feed lubricator and General Electric induction motor of the following specifications: Model 5KG364DE1 - Volts 220/440 - 3 phase - 60 cycle-speed, full load 1760 R.P.M. - 20 horsepower. Fully explosion-proof motor. This compressor and motor equipped with multiple V-type pulleys and belts.

ITEM 2. One Worthington horizontal type air compressor - Size 8-5 Serial #L41931 complete with Manzel force feed lubricator and General Electric induction motor of the following specifications: Model 5KG324B877 - Volts 220/440 - 3 phase - 60 cycle-speed, full load 1750 R.P.M. - 10 horsepower. Fully explosion-proof motor. This compressor and motor equipped with multiple V-type pulleys and belts.

ITEM 3. One Worthington horizontal type air compressor - Size 8x5 Serial #L40256 complete with Model 25-D Manzel force feed lubricator and General Electric induction motor of the following specifications: Model 5KG324B95 - Volts 220/440 - 3 phase - 60 cycle-speed, full load 1750 R.P.M. - 10 horsepower. Fully explosion-proof motor. This compressor and motor equipped with multiple V-type pulleys and belts.

All of this equipment is in excellent condition. It has been used a very small amount and is considered as good as new. All can be inspected at the City of Marfa Gas Plant at any time.

BARGAIN: FISHER 2" STRAINER. 5 Crane 2" steel 600# shut-off valves. 1 Rego 2139 excess flow valve. 30 Scaife 1946 cylinders with collar. Rockwell Print Meter. Leidy's, O'Neill, Nebraska.

24 - 66 WATER GALLON CAPACITY tanks complete with valves, 14 Model R Ensign Vaporizers, 13 - 1 1/4" Carburetors, Ensign type. Also a Columbia twin tank, semi-trailer 3600 water gallon capacity, recently overhauled and painted on 10-90 x 20 tires. This equipment is at our Evansville terminal. This equipment was used for only two years, asking price \$6,500. Original cost was approximately \$9,000. Please contact either Howard Adkins or David Gary. Adkins Transfer Company, Inc., Nashville, Tennessee.

DON'T BE OLD FASHIONED! GET A Nor-Tex "Pony" LPG Bottle Station, 890 WG complete on heavy skids, double locking cabinet, Corken No. 10 pump, 25' hose coupled and valved; Pittsburgh Reset Meter installed complete: \$914.45, F.O.B. Nor-Tex Products Company, Box 775, Denton, Texas.

FOR SALE—IMMEDIATE DELIVERY! Eureka Smokehouse Burner Assemblies! For meat smoke houses using bottled gas. Completely automatic. Clean filtered smoke. Distributes heat uniformly. Low gas consumption. Automatic temperature and pilot control. Less product shrinkage. Easily installed. Write for descriptive pamphlet. Eureka Equipment Company, P. O. Box 396, Beloit, Wisconsin.

"STOP THAT LEAK". ITS EASY TO FIND with Leak Detecto Brush. \$3.75 ea. Quantity discounts. Solution, 5-gal. \$7.50. 1-gal. \$1.75. Gas Appliance Stores, Inc. Box 5057, Columbia, S. C.

GALVANIZED HOOD, STAND, AND BASE to protect your two cylinder installation; \$5.45 each. Packed 10 to a carton. Also Rego or Fisher 2-cylinder regulator, T Block, and 2 pigtails at \$4.65 each. Sold on satisfaction or money refunded. Home Gas Equipment Co., 1301 Carnegie Avenue, Cleveland, Ohio.

COPPER TUBING—3/4" OD X .032 WALL —50 ft. coils, lots of 10 or more \$4.95 per coil. Less than 10 at 50¢ per coil. Freight prepaid on 20 or more coils. Home Gas Equipment Co., 1301 Carnegie Ave., Cleveland, Ohio.

ALUMINUM CYLINDER PAINT, EXTRA heavy body, long lasting, 10 minute drying, for spray or brushing. List price \$4.30 per gallon. Your Cost \$2.85 per gallon. Freight prepaid in lots of 20 gallons or more. Finest quality paint you can buy for bulk tanks or cylinders. Home Gas Equipment Co., 1301 Carnegie Ave., Cleveland 15, Ohio.

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